

Tool Box

Saving and Publishing

Symbols

Simple Animation

Timeline Effects and Filters

Masking

Sounds and Video

ActionScript

Terminology



Fast Track to Flash CS3

By Team Digit

Credits

The People Behind This Book

EDITORIAL

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Do It In A Flash

lash CS3 is an advanced version of Flash that is enriched with more interactivity than the previous versions. This is extremely useful for developing highly interactive Web sites, instructional media, online advertisements, computer games and content for various mobile devices.

Using Flash you can design and develop interactive designs for multipurpose use. You can import Photoshop PSD files and the AI files of Adobe Illustrator.

Flash CS3 also sports a new interface that will keep those of you who are comfortable with Photoshop and Illustrator feel at home. There are a number of screens in Flash CS3 that are extremely helpful to its users. The panels can easily be collapsed to work on a small screen, and you can just click on a collapsed panel to bring it back up to work on it.

Those of you who like to work on dual-monitor desktops, can easily make all the panels appear on either of the screens, and this helps you work more freely.

Flash CS3 provides you with different types of Workspaces. You can use these workspaces to work on different computers or in different places. The power of Flash CS3 will show when you learn how to work with different kinds of symbols, Bitmaps, sound and video files. You can copy and paste graphic settings easily, distribute various Flash content by exporting to QuickTime, use Action Scripts to add interactivity to presentations, and much, much more.

In a nutshell, Flash CS3 is one of the most important design tools for anyone interested in a career in electronic media. This book will get you started on your journey of discovery, and put you firmly on track to becoming a Flash wizard!

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Flash Basics

o get right down to basics, there are many of you who may have never used Adobe Flash, or for that matter, any Adobe product before. This chapter will help you understand the interface, timelines, layers, guides, and more...

1.1 The Interface

When you first load Flash CS3, you will see the Welcome screen. This Welcome Screen (in Flash CS3) is slightly different from the Welcome screen of earlier versions of Flash, for example in, say, Flash 8. You can clearly see the difference in the pictures shown below and on the following pages:



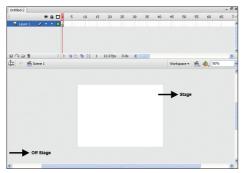
The Welcome Screen of Flash 8



The Welcome Screen of Flash CS3

The Workspace is the arrangement of various Flash-elements such as the Tools panel, Control panels, Property inspectors and Windows. We will walk you through what each of these is in later sections.

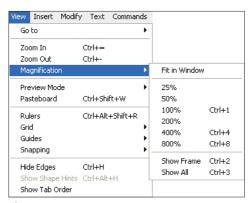
You can change the workspace layout from the "Workspace" drop-down menu. There are three workspace layouts available to you in Flash CS3: Default, Icons and Text Default, and Icons Only Default. The same options can be seen from the Window menu as well: Window > Workspace.



The Stage and the Off Stage

1.2 The Stage

The Stage is the visual workspace, or the Document Window, of Flash CS3. It is the large white space that is seen at the center of the workspace, and is like a blank space or a frame where you can insert text, images and graphics. You can also call it the composing canvas of Flash CS3. You can import and animate various elements on to this Stage. The gray area that you see outside the Stage is called the Off Stage area. To view the Off Stage area you must check the Pasteboard option from the "View" drop-down menu: View > Pasteboard. By default, the Pasteboard option is checked, so unless you un-checked it earlier, you don't need to do anything to view it. You can easily place graphics in the Off Stage area if the Pasteboard is on. The default Stage size in Flash CS3 is 550 x 400 pixels. With resolutions being what they are these days, you might need to change this size. You can just insert the desired value into the Properties panel. By changing the Zoom percentage beside the Workspace option, you can change



View Drop Down menu

the view of the Stage size. You can either select a preset zoom percentage from the dropdown menu, or just type the value in the field.

A single function can be done in various ways in Flash CS3. We can Zoom in or Zoom out the Stage from the View drop down menu:

View > Zoom In View > Zoom Out

You can also select the Zoom Tool of the Toolbar and then drag the particular section of the Stage to either Zoom in or Zoom out. The same function can be done from the Magnification option under the View drop down menu: View > Magnification. The sub-menu shows various Zooming percentages. The 'Fit in Window' sub option under Magnification (View > Magnification > Fit in Window) option helps to fit the stage with the application window. You can restore the appropriate Zooming percentage in case the stage is set to an inappropriate percentage.

You can change the background of the Stage from the Properties Inspector. A Colors palette opens when you click on the Background option of the Properties Inspector. You can

choose your desired color from the Colors palette. The background changes immediately when you select a color from the Colors palette. To zoom in or out by a specified percentage, select View > Magnification, and select a percentage from the submenu, or select a percentage from the Zoom control at the upper-right corner of the Workspace.

1.3 The Tools Panel

By using the Tools Panel you can draw, paint, select and modify various objects in the workspace. You can also change the view of the stage by using this Tools Panels. The Tools in the Tools Panel are grouped in various sections—tools that are used for drawing, painting and selecting other objects are grouped together. Similarly, the Zooming and the Panning tools (To pan the application window) are grouped in a separate section. The colors area includes modifiers for stroke and for the fill colors. We will go into more details about each tools later.



The Tools Panel



The Timeline

1.4 The Timeline

While developing an animation various images and elements are

sequenced in the Timeline. The contents of a Flash document can be authorized by this Timeline. The layers and the frames can be organized in accordance with a specific time length in the Timeline. Just as in popular movie editing software, vou can divide the whole document into various frames according to a specific time frame. Similar functions can be done with the Timeline.

The Timeline remains open in an existing workspace by default. In case it's hidden, just tick the Timeline option from the Window drop down menu: Window Timeline.

The Timeline is a fixed window and it stays on top of every object in the workspace. You cannot drag the Timeline by dragging its title bar. You can, however, drag the Timeline by holding the gripper of the Timeline. The Timeline helps to provide you with visual clues of the animation. For example, a lot Window Drop down menu



of frames and layers can be inserted in an animation by using the Timeline. You can insert a number of animation, and develop complex animations by using layers and special effects.

The column of the left side of the Timeline lists the layers of an animation. In the right side of the layer's name, the frames that are inserted in a layer appear.

The frame numbers appears at the top of the Timeline in the header area. The frame that appears on the stage appears in the playhead section. The detailed information about the current frame is displayed at the bottom of the Timeline, and you can drag a frame to a desired position in a particular layer within the Timeline. You can hide the Timeline by clicking on the Hide Timeline icon.

You can change the frame display by selecting the desired option, and if you click on the Frame View icon, a lot of options will appear. The Frame View option is located at the upper right corner of the Timeline. Here you will see options like Tiny, Small, Normal, Medium, Large, Preview, and Preview in Context.

Similarly, you can change the Placement of the Timeline by selecting the available options of the Frame View: Frame View > Placement. The Placement sub menu includes options like, Above Document, Below Document, Left of Document, Right of Document and Undock from Document.

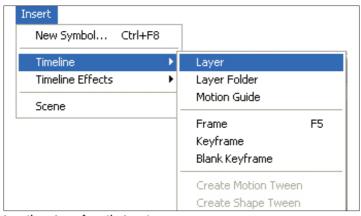
1.5 The Layers

The concept of Layers is not new in Designing. Anyone who knows Photoshop is aware of this useful feature. Layers may be thought of transparent sheets that can hold objects. While developing a very big animation, you may be confused with the sheer number of objects you have to use. But if you distribute those objects in different layers, then the work process can be made much easier.

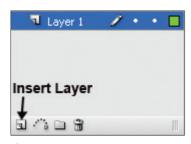
You can systematise various elements with the help of Layers, and these layers are like containers for various objects. You can now work independently—editing text, images etc., of a layer. While you work with an object of one particular layer, the objects on other layers are not affected.

To edit the objects of a particular layer, first you have to select the layer in the Timeline. Once a layer is activated, a pencil icon appears just after the layer or the folder name. Although you can only activate one layer at a time, you can select more than one layer at once. When you start creating a Flash document, only one layer is shown. In order to insert various elements into a document, you will need to insert a number of layers as well. You can hide and lock layers, and can customise the layers as well. Layers do not increase file size of the SWF that you are creating, it's only when you add objects into a layer that the file size increases.

You should always use a separate layer to insert sound in Flash documents, as well as a layer for ActionScript.



Inserting a Layer from the Insert menu



The Insert Layer Button

To insert a layer in the Flash document, all you have to do is go to: Insert > Timeline > Laver

You can also insert a layer by clicking on the Insert Layer button. This button can be found at the bottom of the Timeline.

1.6 The Properties Panel

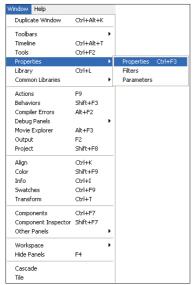
The Properties Panel is a combination of some attributes to edit the selected part of the Stage and of the Timeline. The same functions can be done by other tools and attributes that are available in other menus, but here you can access all those options swiftly. This



The Properties Panel

Properties panel can display detailed information about the current document, and when you select an object in the Stage or in the Timeline, its properties are shown here.

From the Properties Panel you can change the stage size, the ruler unit, the background color of the stage and the frame rate. By default, the frame rate for Flash is 12 fps (12 frames per second).



The Properties drop down menu

If you want to make the animation faster. vou increase the frame rate. Remember, reducing frame rate will result in slowing down the animation.

If this Properties panel is not seen then we can select the following path:

Window > Properties > Properties.

Otherwise we can press [Ctrl] + [F3] to make this Properties panel appear on the screen.

When we select a text on the Stage then the Properties panel shows the following options: Text Type, Font, Font Size, Letter Spacing, Character Position, Font Rendering Method, Text Color, Text Style (Bold, Italic), Edit Format options, Change Orientation of Text, Selection Width, Selection Height, Selection X Position, Selection Y Position, URL Link, and Link Target.

When we select an image on the stage the options that are shown are as follows:

Swap the bitmap for one in the library, Selection width, Selection Height, Selection X position and Selection Y Position.



The Library

1.7 The Library

The Library panel is represented by the Library object. It is a collection of a number of media objects that are used in a Flash file. The object is a container of various objects like bitmap, symbol, sounds and video. It can easily be accessed by fl.getDocumentDOM().Library. We will discuss about this and other commands in later sections.

1.8 Guides and Grids

The Grids are the set of lines that appear on the Workspace. To show the Guides and Grids you first have to check on the Rulers option from the View drop down menu: View > Rulers. Once the Rulers appear on the Workspace, you can drag the Guides from the Rulers. There are two types of Rulers—Horizontal and Vertical. While creating nested Timelines, Guides that can be dragged appear on the Stage, and they only show if the Timeline in which they are created is activated.

To view Guides and Grids on the Stage, you have to check the Show Guides and Show Grids options. The Grid option is available in the drop down menu of the View option and the Show Grid option is available in the sub menu of the Grid option:

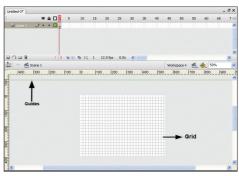
View > Grid > Show Grid.

Similarly, the Guides option available in the drop down menu of the View option and from the sub menu of the Guides option we can reach the Show Guides option:

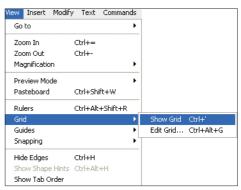
View > Guides > Show Guides.

You can move the guide by clicking on the ruler with the help of Selection tool. By doing this you can easily drag the guide to where vou desire.

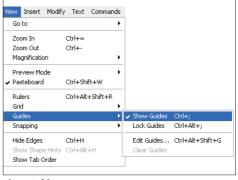
You can easily edit the Grids and Show Guides



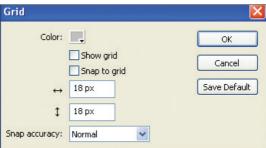
Workspace with Guides and Grid



Show Grid



the Guides. To edit a Grid. you can select the Edit Grid option: View Grids Edit Grids. Here, the Grid dialog will box appear. In this dialog box we will see options like Color. Show grid, Snap to Snap



Customising the Grids



Set Guides to whatever colour you desire

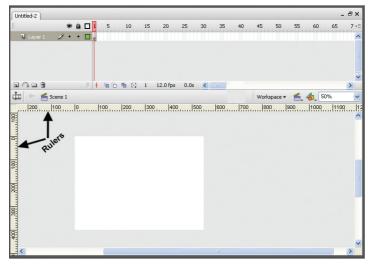
will appear if you click on the Color option of the Grid dialog box. You can select your desired grid color from this Colors palette.

You can edit the Guides in the same way. Just go to View > Guides > Edit Guides.

1.9 The Ruler

Colors palette

The Rulers appear on the document if you check on the Ruler option from the View drop down menu. There are two types of Rulers: Vertical rulers and the Horizontal rulers. These rulers can be seen along the top and the left side of the workspace. You can edit the Rulers from the Edit Rulers option. View > Rulers > Edit Rulers. From this dialog box you can change the color of the Rulers.



Workspace with Rulers

You can denote the parameters for the rulers. To do this, go to ${\tt Modify} \, > \, {\tt Document}.$

Here, the Document Properties dialog box will appear. At the bottom of this dialog box the option Rulers Unit appears. If you click on the arrow near this option, you will see a drop down menu appear. Options like Inches, Inches (decimal), Points, Centimeters, Millimeters and Pixels are available in this drop down menu. Select the desired Ruler Unit.

The Tool Box

the Tool Box, or Tool Palette, in Flash is a palette that contains all the Tools you will need when working. The Tools arranged in a categorized manner as per their genre. They are broadly classified into Selection Tools, Drawing Tools, Coloring Tools, Transforming Tools and others. Depending on the tool you select, the modifier list of that particular Tool will appear in the Properties Inspector located at the bottom of your screen. You can edit the properties of the Tools from there. Let's get to know the tools better.

2.1 The Selection Tools

2.1.1 Selection Tool

Selection Tools, as the name suggests, are used to select objects in the stage with a single click. You can select any object to change its properties, change positions, change colors, delet or resize it, and a lot of other things. To select multiple objects, you can draw a rectangular selection with the selection tool around the objects that needs to be selected. The short cut to select this tool is [V].



The Flash CS3 toolbox

2.1.2 Subselection Tool

The Subselection Tool, or the Direct Selection Tool, is used to select the nodes of an object. If you click on any drawn object, its nodes will appear. You can change an object's shape in this way. The Subselection tool is also used to adjust the length or angle of straight segments, as well as adjusting slopes or curves. The short cut for the subselection tool is [A].

2.1.3 Lasso Tool

Sometimes, you may feel the need to only select a part of an object, and not the object as a whole. In such cases, you use the Lasso Tool. This is basically a free hand selection tool. Just trace the what you want to select using your mouse, and to close the selection, just double-click your mouse on the point you started the selection. If you don't reach the point of origin, Flash will close the selection with a straight line from where you are to the point of origin when you double-click.

You can also use the Magic Wand Tool and the Polygonal Lasso Tool. The Magic Wand is used to select an object on the basis of their fill colour. If you click on a particular colour in an object with the Magic Wand Tool, all other areas with the same colour will be selected.

You can tweak the Magic Wand settings to define the Threshold of selection. If you set a big Threshold value, then the colours that almost match your choice colour will also be selected.

Another selection Tool is the Polygonal Lasso Tool. Here, unlike the Lasso Tool, you don't need to press the mouse while dragging. You can just click once to define the edges. To complete the selection process you have to double-click. The shortcut for this is [L].

2.2 The Drawing Tools

The popular Drawing Tools that are available in Flash are the Pen Tool, Line Tool, Rectangle Tool and Pencil tool.

2.2.1 Pen Tool



The Pen Tool is used to create vector shapes. All you need is to click

on the stage to create the nodes that will result into a shape. After the basic shape is drawn with the Pen tool, the subselection Tool can be used to give it a proper shape. While drawing with the Pen Tool you can also set the properties from Property Inspector. You can set the stroke style, stroke color and the stroke width.

It also has a fly out Menu. Here you can get more options such as Add Anchor Point . Delete Anchor Point and Convert Anchor Point. If you need an extra node on the edge of a shape drawn with the Pen Tool all you have to do is just to click on the position where you want to add the node with the Add Anchor Point tool. To delete an unwanted Anchor point you have to choose the delete anchor tool and click on the node which you want to delete. The convert Anchor point is used to change the angle and the curvature of the line where the node is located.

2.2.2 Line Tool

It is used to draw straight Lines. Here also you can change the properties of the line from the Properties Inspector Panel.

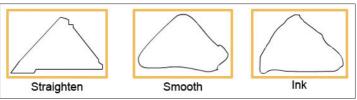
2.2.3 The Rectangle Tool

This tools also has another fly out as its submenu. Here, apart from the conventional rectangle shape you can find shapes like Oval Tool , Rectangle Primitive Tool , Oval Primitive Tool and PolyStar Tool . The name of the Tools clearly explains the shape of the drawing. By using the Primitive objects you can adjust the characteristics of graphic shapes in the Property inspector. You can control the size, corner radius, and other properties of the shape at any time you want even after you have created it. There is no need to re-draw it from the beginning. In Flash, there are two types of primitive objects-rectangles and ovals.

2.2.4 Pencil Tool

It is basically a freehand drawing tool. You can create any shape in terms of lines with the use of Pencil Tool. There are three types of modes available for drawing with the Pencil Tool. They are Straighten, Smooth and Ink. Straighten mode automatically straightens a curved line. It automatically creates the nearest geometric shape like triangle, rectangle oval etc. Smooth mode smoothens the jerks on the edges and Ink mode helps in freehand drawing.

You can set the property of the Pencil tool from the Property Inspector and define your desired property for the line.



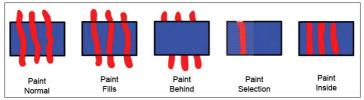
Modes of Pencil Tool

2.3 The Coloring Tools

After you draw a shape in Flash you can color it using the different Coloring Tools. There are a lot of coloring tools available in Flash. They include Brush Tool, Ink Bottle and Paint Bucket.

2.3.1 Brush Tool

It can be used just like you use brush on a canvas. You can paint a shape with our desired colour using the Brush Tool. Some of the options that are available with Brush Tool are Paint Normal, Paint Fills, Paint Behind, Paint Selection, and Paint Inside. These are also referred as Brush Modes. If Paint normal is selected then the brush will paint where ever it moves. Paint Fills mode only colours the fill colour leaving the stroke colour intact. Paint Behind paints the



Modes of Brush Tool

back of the object. Paint selection fills a particular selected area with the fill colour. Paint Inside is used to colour the inner part of an object. The shortcut for the Brush Tool is [B].

2.3.2 Ink Bottle



It is used to change the stroke color, width, and style of lines or shape outlines. Gradients or Bitmaps cannot be allotted to the stroke color.

You can select multiple strokes and can change the color just by a single click.

To apply a different property to the stroke, first you have to set the attributes from the Properties Inspector. Then you can click on the line of the drawn object using the Ink Bottle to change its style.

2.3.3 Paint Bucket



It is useful when you want to fill an object with some color in a single click. The Paint Bucket does not work if there is any gap in the outline of an object. After you select the Paint bucket, you will get options like close large gaps, close medium gaps and close small gaps. This helps in detection of gaps and closing it so that the fill color is applied successfully.

2.3.4 Eraser Tool



This tool helps you erasing an object from the stage. Here as well, you get sub options like Erase Normal, Erase Fills, Erase Lines, Erase Selected Fills, Erase Inside.

Erase Normal erases whereever the eraser is moved. Erase Fills only erases the Fill colors, Erase Lines is used to erase the strokes, Erase Selected Fills helps in erasing a selected portion from the Object and Erase Inside erases the inner part of an object.

2.4 The Transformation Tools:

Often you may feel to transform the size of an object or to rotate it a bit. For all these purpose the Transforming Tools come to play. There are two types of Transforming Tools. One is Free Transform Tool [Q] and the other is Gradient Transform Tool [F]

You can drag the handles to change the size. If you place your mouse curser just outside the object, the rotate icon appears. Now you can drag the mouse to rotate it clockwise or anti-clockwise. You can also skew a shape using this tool. To skew a shape you have to place your mouse cursor just on the border in between the nodes. A bidirectional parallel arrow appears. Now drag either way to skew the shape.

2.5 Eye Dropper Tool 🗷

Eye Dropper Tool is very useful when you want to fill an object with an exact color that you have used for another object. To do this, just select the eye dropper tool from The Tool Palette. Click on the color you want to select. You will see the cursor has changed to a 'bucket' like symbol. Now click on the new shape where you want to put the color. You will see the object is filled with the same color from where you have picked up the shade using the Eye Dropper Tool.

2.6 Stroke Color



Stroke Color is used to define the color of the outline. You can select the outline of an object with the selection Tool and choose any color from the stroke color to apply the shade.

2.7 Fill Color

You can fill an object with a color from the Fill Color option available in Tool Box. You can fill an object with color, gradient shade or a bit map. To change the shade all you have to do is select the Fill Color with the Selection Tool. Then you have to click on the Fill Color option to get the color palette. From there choose the desired color or the gradient shade to apply it to the object.

2.8 Snap To Objects 📵



Snap to objects finds its use when you are working with grids. If you turn on 'Snap to Objects', after choosing the Selection Tool, you will find a small black ring appearing under the pointer as you drag an element. This small ring changes to a larger ring when the object is in close vicinity or within snapping distance of another object.

2.9 Zoom Tool



Some times while working, you need to see the object in an enlarged format. You can select the Zoom Tool and make a rectangular selection around the object to magnify it. You can also click on a particular position of an object to see and enlarged view. The Maximum enlargement you can achieve using the Zoom Tool in Flash CS3 is 2000 per cent. You can press [Alt] and click with your Zoom Tool if you want to reduce the view. The shortcut of Zoom Tool is [M].

2.10 Hand Tool



Hand Tool is used to pan an object on the stage. You can navigate to another portion of an object in magnified form using the Hand Tool. If you double-click on the Hand Tool the zoomed object will be reduced and will fit inside your window. The short cut for the Hand Tool is [H].

2.11 Text Tool



Text Tool is used to type on the screen. Just select the Text Tool and click on the stage to get the typing cursor. You may change the color of the text from the Properties Inspector after selecting the text with the Text Tool. All other Text Properties that you find in a word processing software like font, color, font size, alignment and others are available in Flash. You can create a Text box by dragging

the Text Tool on the stage. The Text box can be set to contain Static Text, Input Text or Dynamic Text.

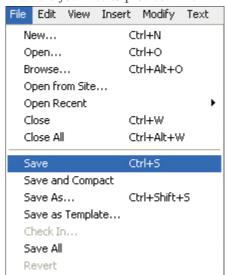
Static text means the text that remains unchanged through out the presentation. Dynamic Text changes depending on the condition set by the developer. Input text is the Text box where the user can type when the presentation is running.

Saving A File

efore anything else, you need to know how to save Flash files. And no, it's not as simple as saving a file in any other software you have to know your formats, what settings to use when publishing, and sometimes, very importantly, where to publish!

3.1 Saving a file in FLA format

A Flash file is saved with .fla extension. There are three major components that are used in a Flash document. They are Basic Media, Timeline and ActionScript. The .fla format is used to save a file with all these components. In order to save a file with .fla extension, you have to first click on the File menu and then choose the Save option from the drop down menu. A dialog box will appear, and here you have to provide a file name and location for saving



Save option in File Menu

the file. Choose the file type as .fla and then click on Save. The file would be saved in the fla format.

The fla format is the format of the raw file. This file only opens with the Flash software and is version dependent. This means if you create a file in Flash CS3 and save it in the same version then you cannot reopen it in any lower version. This is common feature across all versions of Flash.

3.2 Publishing a Movie

A flash movie can be considered successful only after others have viewed it on the Web. In order to do this, you need to publish the movie. There are some steps to be followed in order to publish a Flash Movie.

The first step in publishing a movie is to share it. For this, the component parts required consists of a SWF file, a Web page and a hosting account for the Web. Flash movies are saved in .swf format in two ways. We can publish the file or can export it. To Publish a Flash file to SWF click on File > Publish.

From the option Publish Settings you can define the file types you want to publish.

Here you can set your publishing preferences. These preferences are in respect to the File Types. The main publishing Formats are as follows:

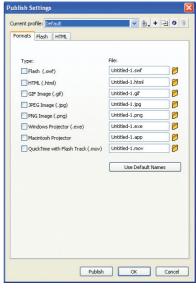


Publish option in File Menu

Flash	_	.swf
Html	_	.html
Jpeg	_	.jpg
GIF	_	.gif
PNG	_	.png
Windows Projector	Macintos	h Projector
and others	_	.exe

Apart from these there are two other Tabs. These are settings for Flash and HTML. In Publish settings you will get a button called "Publish". After you choose your desired settings if you





Publish settings dialog box

Publish Settings option in File Menu

click on Publish then your animation file will be published in your desired mode.

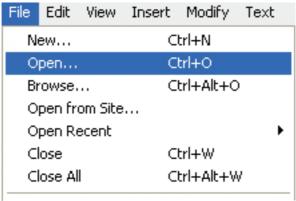
Another way you can save in .swf format is by exporting the Flash Movie.

3.3 Exporting a Movie

A flash movie after being made is saved with a .fla extension. However, when a flash movie is exported, a new .swf file is created.

A Flash movie can be easily exported by following certain steps. For this, click on the File menu and click on Open option from the drop-down menu. Now, select the flash movie that is already created.

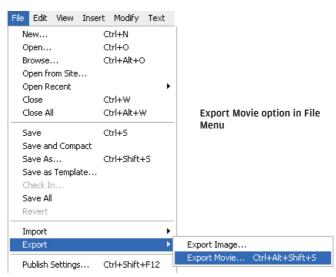
Again click on the File menu. This time, choose the Export Movie option from the drop down menu. The Export Movie dialog box opens. In this dialog box, provide a name for the file and spec-



Open option in File menu

ify the location for saving the file. Save the file with .swf extension and click on Save.

The flash movies can also be exported in .avi, .mov and other formats. After you create an animation in Flash you can export it as a video file. This can be imported to any video editing software like Adobe Premiere and editing can be done.



However, you need to remember that when exporting a Flash file to a video format, Movie Clips and Action Scripts do not work. So if you think of creating a video file from Flash always try to avoid using Movie Clips and Action Scripts.

3.4 Version Control

It is always advisable to maintain a consistency in Nomenclature while you are saving a Flash File. This is more important when you are saving multiple versions of a single file.

Not all of us have an updated version of the software. So if you save your animation in a higher version it will never open in any lower version. So it is always advisable to save multiple copies of the file in multiple versions. Flash provides you with the feature to save as a lower version FLA file.

Creating Symbols

ere's where it all starts to get exciting, interesting and complicated even. When working with objects, you can make them into symbols. Graphics, buttons and movie clips are examples of Symbols

4.1 Different Types Of Symbols

There are mainly three types of symbols available in Flash CS3. These are Graphic, Button and Movie Clip symbols. Each symbol has got a unique Timeline and Stage. These symbols can be applied many a times in a document, or even in other documents.

Graphic symbols are used for static images. Another important usage of Graphic symbol is to create reusable pieces of animation that are linked to the main Timeline. In comparison to buttons and Movie Clips, Graphic symbols contribute very little to the flash file size as they usually don't have a timeline with animation as such. These symbol functions in sync with the main Timeline.

Button symbols on the other hand are mainly used to create interactive movies. These buttons respond to mouse clicks, rollovers and other actions.

Buttons have 4 stages. These are Up, Over, Down and Hit.



Button States

Now let us discuss these steps one by one.

Up State: This is the stage when the cursor is away from the button. The appearance of a button when placed on the screen is the Up State.

Over State: When the mouse cursor is placed over the button the appearance of the button can change. This is referred as Over State

Down State: Down State defines the appearance of the button when it is clicked.

Hit Area: Hit area is the active part of the button. Your button may physically occupy a small area but if the Hit Area is big then the active part of the button will also be large.

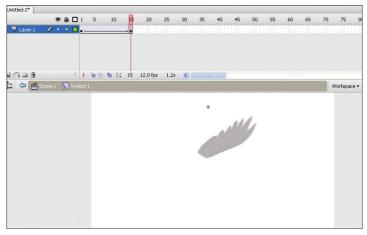
Movie Clip symbols are also used to produce reusable pieces of animation. They have their own multi-frame and multi-layer timeline. This Timeline is not attached to the main Timeline of the scene. This Timeline may be thought of as a separate animation, which can be included within the main scene.

Movie Clips basically help to create an animation within another animation. Let's take an example to understand the use of a movie clip. Suppose you are trying to create a flying bird in Flash.



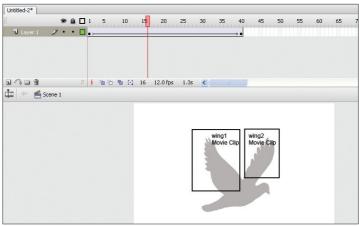
Now if you consider the flying pattern you will definitely observe that basically there are two motions. One motion is the flapping of wings and the other is the movement of the whole body. So we can see in terms of animation that there is wing animation inside the flying animation. Now these two animations cannot be developed in the same scene. Here the concept of Movie Clip comes into play. To create an animation of a flying bird first IV

we have to create a Movie Clip where we will only show the flapping of wings.



A movie clip to create flapping wings

This Movie Clip can be attached to the body in the main scene and the whole body along with the animated flapping wings can be put in to motion.



The main scene

The bird will then fly moving the wings, just as you see in your every day life. Movie Clip also helps us to play an animation within a Loop. Again to create animated buttons these Movie clips instances can be put inside the Timeline of a Button symbol. The Movie clips are scriptable with Action Script.

4.2 Instance Name and Library

Instance Name

Instance Names are the names which we can assign to movie clips and buttons. Instance names are very useful when we are using ActionScripts. Generally, a movie clip or a button is referred to in the ActionScript by an Instance Name. This can be set from the Properties Inspector Panel. It is wise to put an instance name after you create a Button or a Movie Clip. You never know when you may require to call a symbol while using scripts.

Library

The Library is basically the store house of symbols from where they are used throughout the movie. When vou need multiple instances of the symbols, you can just drag them from the library to any part of the movie you want. You can also use the symbols of one movie in another movie as an external Library. If you delete a symbol from the stage, the symbol remains in the Library and can be used again when needed. Deleting symbols from the library results permanent deletion though.

You cannot edit a symbol on stage. So if you want to edit a symbol, you need to refer to the Symbols in the Library



library. From the Library panel, right-click on the symbol and choose edit to go to the time line of the symbol.

4.3 Create A Simple Graphic Symbol

Graphics symbols are mainly used for the purpose of creating animations and static images. To create a Graphic Symbol follow these steps:

- 1. Draw a shape on the stage using the drawing Tools or import bitmaps onto the stage by pressing [Ctrl] + [R].
- 2. Select the object and press [F8] or choose Modify > Convert
 to Symbol.
- 3. Now when the object is selected choose the Graphic Behavior and name the symbol as per your choice.
- **4.** You can edit the symbol later on either by double-clicking on it in the library, or right-clicking and choosing Edit.
- 5. The name of the symbol will automatically appear beside the scene name.
- **6.** Here you can edit the properties of a graphic symbol.
- 7. If you want to exit from the symbol editing mode then click on 'Scene 1'
- 8. This helps you to go back to view the main movie's timeline.

4.4 Create A Simple Button

Buttons are a special type of symbol that contain 4 frames: Up, Over, Down and Hit. These frames symbolize varied states for the button. To create a simple button follows the steps:

- 1. To create a button, select an object on the stage.
- 2. Select Modify > Convert To Symbol or press [F8].
- 3. Select Button and click OK.
- 4. Now right-click on the symbol and choose edit.
- 5. Notice Flash shifts to symbol-editing mode where the Timeline header changes to show four frames Up, Over, Down and Hit as we have discussed above. The first frame i.e. Up is a blank keyframe.

- **6.** Select the second frame i.e. the Over State and go to Insert > Keyframe. Here you can change the properties as per your choice. This will enable the button to get a new look when the mouse cursor will be placed above the button.
- 7. Now change the button properties for the Over State by the same process.
- 8. Repeat the same process for Down State also
- 9. Give a specific Hit Area
- 10. Now come to the initial flash screen by clicking the scene 1 tab.

4.5 Create a movie clip

Movie clip symbols are Flash movies inside a Flash movie. These symbols are reusable pieces of Flash animations that comprise of one or more graphic or button symbols. To create a Movie clip follow these steps:

- 1. Import bitmaps on to the stage by pressing [Ctrl] + [R] or from File > Import > Import to stage
- 2. You can also draw an object if you like
- 3. Select the object with the mouse.
- 4. Choose Modify > Convert to Symbol or press [F8].
- 5. Select the Movie clip Behavior and name it as "mc_pic".
- 6. Move your mouse over mc pic and double-click to shift it to symbol-editing mode.
- 7. Create an animation sequence by using either Tweened animation or Frame by Frame animation.
- 8. Click on Scene 1 and exit from the symbol editing mode.
- 9. Your Movie clip is ready; to view it press [Ctrl] + [Enter].



4.6 Assign an Instance Name to A Movie Clip

After a Movie Clip is created we should assign an instance name to it. Instance names are very useful when we attach Action Scripts to it. Instance name and symbol names are different. When you define a symbol, the following dialog box appears:



Convert To Symbol Dialog Box

CREATING SYMBOLS

This is to assign a name to the symbol, and has nothing to do with instance names.

After a movie clip is created you can assign the instance name from the Properties Inspector.



Setting an instance name

4.7 Blend Modes and Colors

4.7.1 Color

The Color option in Flash helps in changing the color and transparency of an instance. Every instance of a symbol has its respective color effect. The color and transparency options for instances is set from the Property Inspector. All the changes made in the Property Inspector affect the bitmaps which are present in the symbols.

If any change is made in the colour and transparency of an object in a particular frame, then that change is instantly noted by Flash. As soon as that particular frame is dispalyed, Flash makes it

a point to note the change. It is better to apply a motion Tween in case a gradual change is required. If it is needed to Tween the color, then different effect settings needs to be entered in the beginning and ending keyframes of an instance. After this is done, the settings are Tweened. This makes the color of the instance change with time.

When a color effect is applied to a movie clip symbol including multiple frames, then the effect is uniformly applied to each and every frame in that particular movie clip symbol. To apply color effect on a movie clip symbol, follow these steps:

- 1. First, you have to select an instance on the stage.
- 2. Click on the Windows menu.
- 3. Click on Properties and then again Properties from the drop down menu.
- 4. Once the Properties Inspector opens, you will see that the Color option is available there.
- 5. Click on the Color menu.
- **6.** Choose your desired Color mode from the drop-down menu.

There are several options available under Color menu in Flash. They are Brightness, Tint, Alpha and Advanced.

Brightness: The relative amount of lightness and darkness of the image is decided by the Brightness option available under the Color menu. The value of Brightness varies from Black which is 0% to white which is 100%. The brightness value can either be adjusted by clicking the down arrow and dragging the slider or by putting a value in the box.



Brightness Color Option

Tint: If we apply Tint property on an object, then the object gets colored with the same hue. The percentage of Tint varies from transparent which is 0% to saturated which is 100%. The percentage of Tint to be applied on the object can be determined by using the Tint Slider. The Tint Slider is present in the Property Inspector. In order to adjust



the Tint, you can click the triangle and then drag the slider. Another way of adjusting the Tint is by entering a value in the box.

If a color is to be selected, then different values for Red, Green and Blue has to be entered in the respective boxes. Another way that can be followed is to open the Color Picker and choosing a color from there. The Color Picker can be opened by clicking the Color Control.



Tint Color option

Alpha: If the transparency of an instance needs to be adjusted, then the Alpha property is to be applied. The value of Alpha varies from transparent which is 0%, to fully saturated which is 100%. In order to adjust the Alpha, you can click the arrow and then drag the slider.



Alpha Color Option

Advanced: At times it may be required to adjust the value for transparency and the respective colors, that is red, green and blue of an instance separately. It is in such cases that the Advanced option can be used from the Color menu. By using the Advanced option, it often becomes easier to create and animate color effects on bitmap objects. In order to set the values for the Advanced effect, click on Settings after selecting it under the Color menu. In the Advanced effect dialog box, use the controls on the left if the transparency or the color value has to be decreased by a certain percentage. The controls on the right are used to either increase or decrease the transparency or the color values by a constant amount.

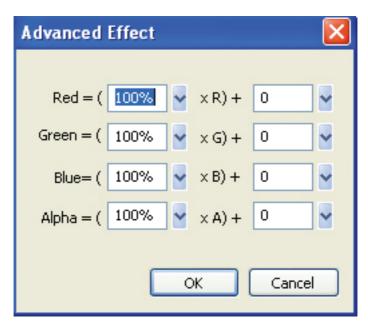
When the values are entered for the respective colors, red, green and blue and the Alpha value in the Advanced effect dialog box, then the values are first multiplied by the percentage values. The values are then added to the constant values present in the right column. After this is done, the new color values are created. Let's take an example. Say the current value for the color blue is 100. Now using the slider, the value in the left column is given as 50%. The value in the right column is input as 100%. The new color value that is produced is 150.

The calculation can be shown as: $(\{ 100x.5 \} +100 = 150)$.

The color of an instance can also be changed by using the Action Script Color Transform object.

Now let us see how we can create animations using this color menu.

- 1. Let us consider a bitmap image on your screen.
- **2**. Click on the image to select it and press [F8].



Advanced Effect Dialog box

- 3. A dialog box appears.
- 4. Choose Graphics option and click OK.
- 5. Now at 50th frame and a Key frame.
- 6. Return to the 1st key frame.
- From the Properties Inspector dialog box choose Alpha from color menu.
- 8. Set the value of Alpha to 0.
- How ever the value of Alpha for the last keyframe should be kept to 100.
- **10.** Now click on the layer to select the timeline in between keyframes.
- 11. Right-click on the selection and choose Create motion Tween.
- 12. Press [Ctrl] + [Enter] to see the preview.
- 13. You will find the image gradually becomes visible.

4.7.2 Blend Modes

Blend Modes in Flash helps in creating composite images. Compositing means the way by which the transparency or color interaction of two or more objects that are overlapped varies considerably. By using the blend modes, unique effects can be created. The effects can be created in two ways.

- Different colors blend in overlapping movie clips to create the effects.
- A dimension of control is added to the opacity of images and objects.

The blend modes in Flash serve a number of other purposes too. The blend modes are useful in highlighlighting the details of an underlying image by creating either shadows or highlights. A desaturated image can also be made colorful by applying blend modes.

There are different elements that a blending mode consists. They are Blend Color, Opacity, Base Color and the Result Color.



Blend Modes

Blend Color can be defined as the color which is applied to the blend mode.

A blend mode has some degree of transparency. This is known as the **Opacity** of the Blend Mode.

Base Color stands for the color of pixels present beneath the blend color.

The resultant color on the base color due to the blend effect is known as the Result Color.

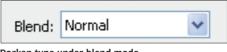
Two things should be remembered while applying blend mode on any object in Flash. The two things that matter is the color of the object and the underlying color. It is very essential to understand the nature of these two colors in order to create the right effect. For this it is necessary to experiment with the various types of Blend modes that are available in Flash.

Types of Blend Modes

The various blend modes that can be applied are:

Normal: This blend mode helps in applying color normally. The base colors Darken type under blend mode do not interact in the process of application.

Layer: The blending of color takes place normally in this blend





mode too. Darken type under blend mode

However, the blend object is pre composited at an opacity of 100% before the blending takes place. By doing this, the subclips of the blend object are restricted from blending through one another.

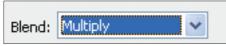
Darken: This blend mode is used to replace certain areas which are compara- Darken type under blend mode tively lighter than the



blend color. The areas which are darker than the blend color, remains unchanged.



Multiply: The multiply blend mode in flash helps in creating



Multiply type under blend mode



Lighten type under blend mode

more darker colors. This is done by multiplying the base color by the blend color.

Lighten: Lighten blend mode helps in the replacement of only those pixels which are darker than

the blend color. Areas which are lighter compared to the blend color remains unchanged.

Screen: The use of this blend mode in Flash helps in creating a



Screen type blend mode

bleaching effect. This is done by multiplying the inverse of the blend color by the base color.

Overlay: This blend mode in Flash multiplies or screens the



Overlay type under blend mode

colors. The multiplying or screening of the colors however depends on the base colors.

Hard Light: The Hard Light Blend mode in Flash is useful in



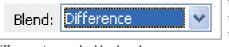
Hard type under blend mode

multiplying or screening the colors. The multiplying or screening of the colors however depends on the

blend mode color. The effect created by using this blend mode resembles that of a spotlight shining over an object.

embles that of a spotlight shining over an object.

Difference: The difference blend mode helps in subtracting



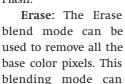
Difference type under blend mode

the blend color from the base color or just the opposite. The subtraction however depends upon the greater brightness value of either the blend color or the base color. The effect that is created is similar to that of a color negative.

Invert: This blend mode can be used in Flash to invert the base color.

Alpha: This blend mode helps in applying an alpha mask in

Flash.

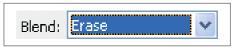




Invert type under blend mode



Alpha type under blend mode



Erase type under blend mode

also be used to remove the pixels present in the background image.

It should however be noted that the Erase and Alpha blend modes can only be applied to a parent movie clip if a blend mode apart from Normal is already applied on it.

It is very easy to apply blend mode to a movie clip in Flash. The blend modes in Flash can be applied from the Properties Inspector. This can be done by following certain simple steps in Flash.

- 1. First, select the movie clip instance present on the Stage.
- 2. Now, make adjustments in the transparency and color values of the movie clip instance.
- 3. This can be done from the Color menu in the Properties Inspector.
- **4.** In the Properties Inspector, clcik on the Blend option.
- 5. From the drop down menu, choose the desired blend mode option.
- **6.** The blend mode gets applied on the movie clip instance. The change can be seen instantly.

However, the correct type of blend mode should be chosen so that it matches the effect perfectly.

Simple Animation

ow we get to the point where we will show you how to go about creating simple animations in Flash CS3. After all, the whole point of using Flash is to learn how to create those mindblowing animations taht you se online.

5.1 Frame By Frame Animation

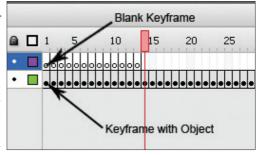
When a series of images appears at an interval of time, then it appears to show some movement. This can be termed as animation. Such animations can be created in Flash too. Animations in Flash are created with the help of frames. Frames in Flash can be defined as the little rectangular cells which appear on the Timeline.



Timeline of a Frame by Frame Animation

Key Frames are special types of frames where we can attribute some change like position, color, shape, etc.

Keyframes can be of two types. If a Keyframe has content in it, then it is represented by a circle. An empty circle preceded by a keyframe denotes that it is an empty keyframe.



Two types of Keyframes

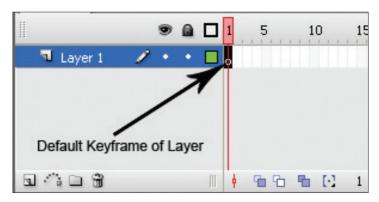
In order to create an animation, the changes are needed to be registered in keyframes. While creating a Frame by Frame animation, every individual frame is treated as a keyframe. Frame by Frame animation plays an important role in creating complex animations.

All animations are not simple. Complex animations are generally larger in size. This is because, while making these animations, the contents with which we are working on the Stage tend to change in individual frames. In such animations, the movement of image across the stage is restricted. Instead, the image changes in respective frames. In this type of animation, a complete frame generally has some value. The values for the complete frames are stored by Flash.

A Frame by Frame Animation can be easily created by following certain steps.

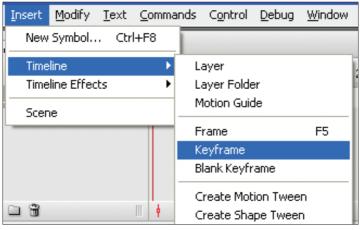
At the very beginning, individual frames are to be treated as single keyframes. At the same time, creating separate images for respective frames is necessary.

- 1. To begin, make a layer active by clicking on it.
- 2. Now, on the layer, select a frame. The animation will begin from this particular frame.
- 3. The first frame is a keyframe by default.



The first frame is a keyframe by default

4. If the keyframe is deleted from the 1st frame then choose Insert > Timeline and then Keyframe option from the drop down menu.



Keyframe option in the Insert Menu

- After this is done, the artwork needs to be specified. There is a sequence to be followed. So the artwork will be specified for the very first frame.
- **6.** The artwork may be created by using the various drawing tools. The use of graphics can also be made.
- **7.** At times, addition of a new keyframe is required. This new keyframe will contain identical content present in the first keyframe.
- **8.** This can be done by clicking on the next frame in the right. However, the row has to be same.
- **9**. Next, click on Insert menu. Choose Timeline and then Keyframe from the drop down menu.
- 10. The next part of the animation can also be created easily. The only thing that needs to be changed on the stage is the content of the particular frame. We can also change the position, shape color and other properties in each of the keyframes.
- **11.** The complete sequence can be achieved by repeating the above steps.

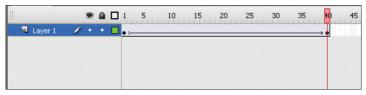
- 12. Once the frame by frame animation is created, you can test it by clicking Control > Play.
- 13. This is called frame by frame animation.

5.2 Develop A Simple Timeline Motion Tween

The term "Tweening" means "in between". Animations can be created in Flash with the help of the Tweening method. By using this method, changes can be made in the animations very easily. The movement from one keyframe to the other becomes convenient with the use of the Tweening method in Flash. Tweened animation also helps in decreasing the size of the files. In Flash, it is the most effective way of creating movements.

There are two types of Tweened animation in Flash. One is the Motion Tween and the other is the Shape Tween.

Motion Tween in Flash is primarily used to change properties of a group, types or instances. Properties like the size, position and rotation of the symbols can be defined at one time by a motion Tween. The same can again be changed if needed, at another point of time. A motion Tween can also be created along a path.



Timeline of a Motion Tween Animation

By using the Motion Tween, color changes can also be made to instances or types.

Motion Tweens can be created in two ways in Flash. These are:

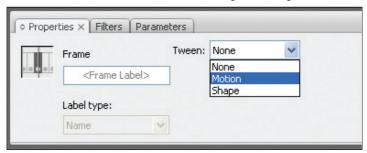
- Using the Motion Tween option
- Creating the Motion Tween along the path



5.2.1 Using The Motion Tween Option

There are certain steps to be followed for using the motion Tween option for creating the animation. To do this, first:

- 1. Make a layer active by clicking on it.
- **2**. On this layer, select an empty keyframe. It will be here where the animation will begin.
- 3. Next, the first frame of the motion Tween is to be created. This can be done either by drawing a graphic object and converting it into a symbol or by dragging an instance of a symbol from the Library Panel. This can also be done by creating on the stage a group, an instance or a text block.
- 4. Keep the new keyframe selected.
- Now, choose another keyframe where the animation is suppose to end.
- 6. At times, the item or the object in the last frame needs to be changed. To do this, either the position of the object can be changed or the size can be modified. Change in color for text block and instances can also be done.
- 7. Next, from the entire frame span of the Tween, choose a frame.
- 8. Now, select Motion as Tween in the Properties Inspector.



Tween option in the Properties Inspector

9. At the time of Tweening, the object can also be made to rotate. This can be done by attributing any of the rotation options. You can select Auto to make the object rotate in that direction where the motion required is least. The Clockwise and Counterclockwise options can be used to specify the number of rotations. If no rotation is desired, then choose the 'none' option.

10. In the Properties Inspector, choose the option Sync in order to match the Timeline and the animation of graphic symbol instances.

We can also create Motion Tween along a Path. This process is discussed next.

5.2.2 Creating The Motion Tween Along A Path

Just imagine you have visited an unknown tourist spot. You don't know which path you will follow so that you can reach the destination. What will you do? A voyage of discovery? Jokes apart... you should take a guide. A guide knows the route. He will take you to your destination. Similarly in Flash a motion, a guide defines the trajectory of the movement of an object. If you apply Motion Guides a new Layer is introduced which is called a Motion Guide Layer. Whatever you draw as a guide in the Motion Guide Layer is not visible in the final animation.

The Motion Guide layers are basically used by objects to acquire a logical position. Lines and shapes can be drawn into the Guide layers. These lines and shapes are used by the objects to justify the position.

Now let's see how Motion Guide is used:

- 1. Say you have an object placed in the first key frame
- **2.** Convert it to a graphic
- 3. Set the registration point at the centre
- 4. Now create another keyframe where you tend to complete the animation
- 5. Now if you apply motion Tween then you will get a linear movement, so don't do that at this point of time
- 6. Add a Motion Guide Layer
- 7. Now with your pencil Tool draw a path which should be fol-



Guide Laver

lowed by the object while in motion

- 8. Come back to the 1st layer which holds the object
- **9.** With your mouse drag the object and place it just at the starting point of the path
- 10. Now move to the last key frame
- 11. Move the object and attach the centre at the ending point of the path
- 12. Right-click on the mouse and apply motion Tween
- 13. You will see the object is moving following the path
- 14. Remember, don't apply motion Tween on the guide layer.

5.2.3 Using Easing Controls

Easing is used in Flash to create much more realistic looking animations. In order to deal with the types of motion which accelerate sometimes and decelerate in other instances, easing is the easiest solution that is used by Flash.

The Ease setting made in the Properties Inspector of a keyframe is responsible for regulating the acceleration and deceleration. The Easing slider is used to specify the values.

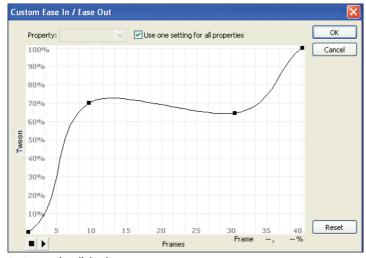
Easing in Flash can occur in two ways. Ease In and Ease Out. If



Ease option in the Properties Inspector

the motion begins slowly and speeds in the end, then it is called Ease In. On the other hand, when the object moves fast in the beginning and slows down at the end, then it is called Ease Out.

There is however another easing method that can be used in Flash. It is known as Custom Easing. The main difference between Ease In and Ease Out and Custom easing is that, in the Ease In and Ease Out methods, only one setting can be applied between two Keyframes. Custom Easing on the other hand is used to make the easing of the Tween much more fine and smooth. This can easily be done by using the Custom Easing dialog box.



Custom Easing dialog box

To open the Custom Easing dialog box, you first need to select a keyframe. Once this is done, add motion as Tween from the Properties Inspector, if required. Next, click on the Edit button. The Edit button is present just beside the Ease Slider. The Custom Ease In/Ease Out dialog box appears on the screen after this.

The Custom Ease In/Ease Out dialog box has several parts and each has its functions of its own. The various parts are:

- The Graph area
- The Graph Line and the Control Points
- The Play Preview Button
- Modifying a graph

You can see a line in the graph area. This line stands for the amount of Tween that has occurred over the time. The Tween percentage scale appears vertically and contains the range from 0% to 100%. The Frame Scale in terms of the Current Frame/Percentage

appears horizontally. If there is a Tween with no easing at all, then it is denoted by a 450 straight line. This line begins at 0% in the first frame and ends at the last frame which is 100%.

The Graph Line and the control points appear next. The control points appear by right-clicking on the graph line. These control points have handles to change the shape of the graph. Usually, a Tween only has a control point at the beginning and at the end. These points help ion easing in and easing out a Tween. However, if the easing needs to be changed in the middle of a Tween, then more control points can be easily added.

The function of the Play Preview Button is to enable adjustments easily. The dialog box does not require to be closed if you are using this button.

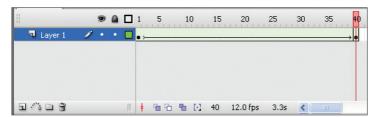
While modifying a graph, the cursor usually change shapes. The change in the cursor suggests the result if you 'click'. While modifications are made to the graph, some other tasks can also be done. They are:

- Selecting a control point
- Adding a control point
- Moving a control point
- Modifying the shape of the graph either before or after a control point
 - Deselect all the control points

5.3 Develop A Simple Timeline Shape Tween

Shape Tweening is the second type of Tween in Flash. While creating a shape Tween, you can first draw a shape in a frame at a specific point of time. The shape can be changed or an entirely different shape can be drawn at a different point of time. The animation is created as Flash alters the values and shapes present in the frames.

Say you have a box and want to make it into a circle. In these cases you need two shapes, namely a square and a circle. You can do this by using the Shape Tween. Shape Tween does not work if the object is converted to symbol. You can can create a fantastic morphing effect by using Shape Tween.



Timeline of a Shape Tween

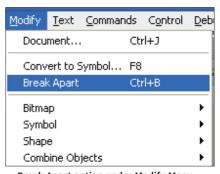
Shape Tweens can also be made more accurate with the use of shape hints. You can specifically set the names of the corners and set a direction to them while changing the shape. Shape Hints are available from Modify > Shape > Add shape Hint. The shortcut for adding shape hint is [Ctrl] + [Shift] + [H].

If you need to remove the shape hint from the shapes before applying Shape Tween then the steps are Modify > Shape Remove All Hints.

However if you need to perform shape Tween with text, it will not work. In order to Shape Tween text, you have to apply break apart and transform the text to pixels. Applying Break apart will result to the loss of text properties. Once, the break apart is done, the shape Tween can be applied to the texts successfully by the same process.

Steps to create Shape Tween:

- 1. Draw an object in the first keyframe of the Time Line
- 2. Don't convert it to Symbol
- 3. Insert a Blank Keyframe on the final position
- 4. Draw a new shape
- 5. Now click on the layer to select all the frames
- 6. From Tween in Properties Inspector choose Shape Tween
- 7. That's all.... You play the movie to see the Shape Tween.

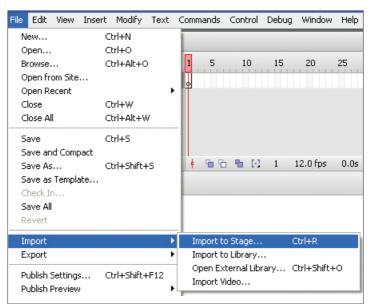


Break Apart option under Modify Menu

5.4 Importing An Image For Animation

It is not always required to draw an object on the stage and then create an animation on it in Flash. If you want, Flash can also be used to create animations from external images or bitmaps. However, these images have to be imported to the stage first before creating the animation. This is because the images are stored in some other folder. It may seem to be a hard task to importing images in Flash, but it isn't.

First open a blank Flash document. After the stage is displayed, click on the File menu. Next, click on Import and then on Import to Stage from the drop down menu. The Import dialog box appears. From here, choose the location where the image is stored. Click on the location. If the image is stored in a folder, then all the images in that particular folder will be displayed. Choose the image on which you would like to apply the animation. Select the image and click on Open. The image will



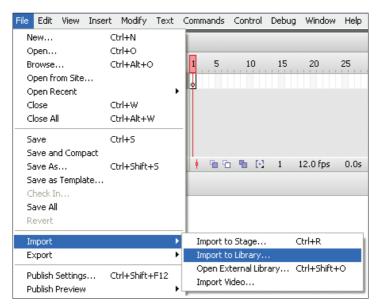
Import to Stage option under File Menu

now appear on the Stage. You can now create any animation you wish on the image. You can give the image a gray scale effect, you can also make the image vanish and then reappear on the screen. You can rotate the images as well as make text appear with the images.

Sometimes it may so happen you are not sure whether you are going to use a bitmap at that instant or not. Here, without importing an image directly to the stage, you can import the image to the Library. By doing this your stage will not be occupied by an image. Later you can drag the image from the Library as and when required. For this you have to follow some simple steps as follows:

File > Import > Import to Library

Later on this Library can also be opened in another file as an external Library and the imported image can be used there as well.



The import to Library option under File Menu

5.5 Transparent Background Images

Sometimes while importing an image in Flash you may face some problems, such as an unwanted background in your image. This problem can be handled easily.

All you have to do is to delete the unwanted background in Adobe Photoshop. Adobe Photoshop is a popular image editing software and hence the background deletion can be done very easily.

Now when you get your desired image in a transparent background, save the file in .png (portable network group) extension.

After you save this file in .png format, you import this in your flash animation.

You will find the image has been imported with the transparent background.

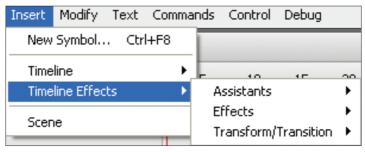
Timeline Effects And Filters

t's not all about motion and shape shifting! Flash CS3 beings a lot of really cool effects and filters into play, using which you can cre-Late some really impressive animations. And it's all available to you out of the box.

6.1 Timeline Effects in Flash

The Timeline in Flash consists of a number of frames. The frames in Flash are used to hold the duration of time of the animation. Each frame holds some part of the animation.

The Timeline Effects in Flash are available under the Insert



Options of Timeline Effects

menu. The Timeline Effects have three options. They can be classified as Assistants, Effects, and Transform/Transition. There are a number of sub-options available as well.

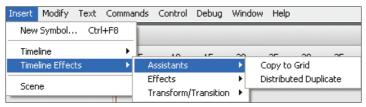
The Timeline Effects in Flash play an important role in creating animations. By using the Timeline Effects, you can actually assign attributes like Blur, Drop Shadow on the object in the stage rather than using keyframes. It saves the user a lot of time and the complexities of the process are also removed. The animation can be easily and quickly created.

The function of the individual Timeline Effects is to manipulate a graphic or a symbol in a particular manner. The Timeline Effects help in changing the parameters. The leniency in using the Timeline effects helps to achieve the desired effect easily.

All the changes that are made in the settings can be viewed in the Preview Window.

6.1.1 Assistants

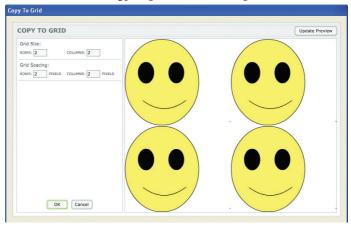
Under Assistants there are two options. It is **Copy to grid** and **Distributed Duplicate**.



Options of Assistants under Timeline Effect

Copy To Grid

The function of **Copy to grid** is to create a grid of the elements.

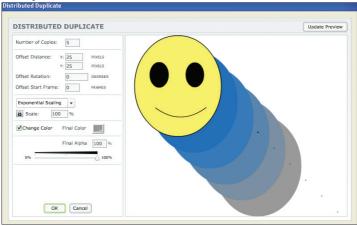


Copy to Grid dialog box

This is done by duplicating a selected object first by its columns. The columns are then multiplied by the number of rows to get the grid of the elements. The settings in the Copy to grid include number of columns, number of rows under Grid Size and distance between the rows and columns under Grid Spacing. The values under Grid Spacing are denoted in terms of pixels.

Distributed Duplicate

The function of **Distributed Duplicate** is to duplicate a selected object for that number of times which is entered in the set-



Distributed Duplicate dialog box

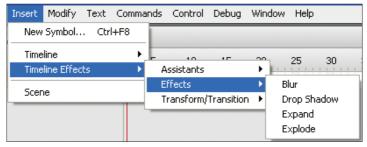
tings. The first element is usually a copy of the actual object. To get the final result, certain parameters are used in the settings. The Distributed Duplicate function sees that the copies are modified until the final parameter is reached. The settings under Distributed Duplicate include the number of copies, Offset Distance with x and y positions denoted in pixels, Offset Rotation denoted in degrees, Offset Start Frame denoted in frames across the Timeline, Exponential and Linear scaling by x and y denoted in terms of percentage, Final Alpha denoted in percentage, Change Color, Final Color in RGB mode denoted in hexadecimal value, and duplication delay denoted in terms of frames.

6.1. 2 Fffects

Effects under Timeline Effects can be classified as Blur, Drop Shadow, Expand and Explode. Each has its own functions and hence needs to be studied in detail.

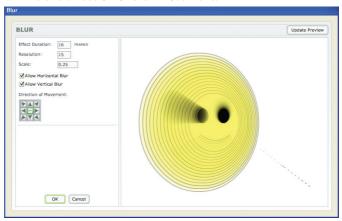
Blur

By using this effect, a motion blur can be created on the object on



Sub options of Effects option

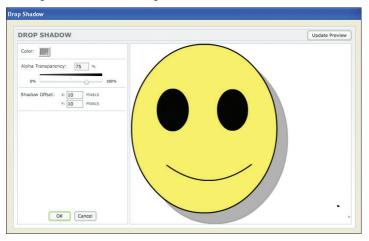
the stage. Change in the position, scale or alpha value of the object over a certain period of time creates the Motion Blur on the object. The settings under blur include Duration of the Effect denoted in frames, Resolution, starting Scale, Horizontal blur and Vertical blur and the direction of blur movement.



The Blur dialog box

Drop Shadow

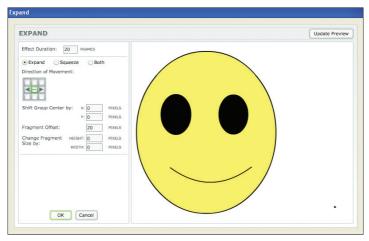
By using this function, a shadow is created below the selected object. The settings under drop shadow consists of Color which is denoted in RGB mode and in hexadecimal value, Alpha Transparency in terms of percentage and Shadow Offset with X and Y positions denoted in pixels.



Drop Shadow dialog box

Expand

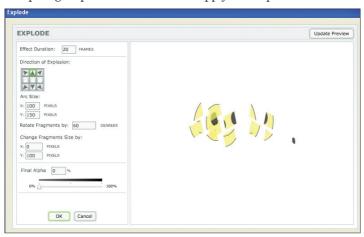
The Expand effect in Flash helps in either expanding or contracting an object over a certain period of time. The Expand effect can be shown best on two or more objects which are grouped together. The Expand effect can also be well demonstrated on two or more objects either combined in a graphic symbol or in a movie clip. An object consisting letters or text can also be used to demonstrate the effect. The settings grouped under Expand effect include Effect duration denoted in terms of frames, Expand, Squeeze, Both, Expand direction, Shift Group Center with X and Y offsets denoted in pixels, Fragment Offset denoted in pixels, Change Fragment Size with height and width options denoted in pixels.



Expand dialog box

Explode

An object gets an exploding appearance when the Explode effect is used in Flash. The Explode effect can be used on elements of text. Objects like video clips, shapes and symbols which form a complex group can also be used to apply the Explode effect. This



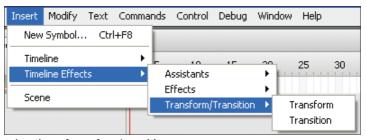
Explode dialog box

effect when used tends to spin, arc and break apart objects and elements of text. The settings grouped under Explode effect include Effect duration denoted in terms of frames, Direction of Explosion, Arc size with X and Y offset denoted in terms of pixels, Rotate Fragments by option denoted in terms of degrees, Change Fragments Size by option with X and Y offset denoted in terms of pixels and Final Alpha value denoted in terms of percentage.

6.1.3 Transform/Transition

Transform

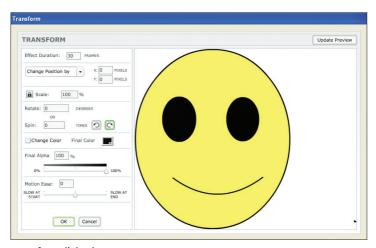
In order to adjust the position, rotation, alpha, scale and tint of the selected elements in Flash, the Transform function is used. This effect in Flash is extremely useful when it is needed to apply



Sub options of Transform/Transition

either a particular effect or multiple effects on an object. The various effects that can be applied consist of Fly In/Out, Fade In/Out, Spin Left/Right and Grow/Shrink.

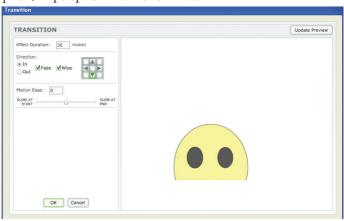
The settings present under Transform consists of Effect Duration denoted in frames, Move to position with X and Y offset denoted in pixels, Change position by option with X and Y offset denoted in pixels, Rotate denoted in terms of degrees, Spin denoted in terms of number of times, Times option both Counter clockwise and clockwise, Scale option when locked applies equal change denoted in percentage and when unlocked applies changes separately in X and Y axis. The value is denoted in terms of percentage. Other options available are Change Color, Final Color, Final Alpha denoted in terms of percentage and Motion Ease.



Transform dialog box

Transition

If a selected object is required to be wiped in or wiped out by either fading or wiping, then the Transition effect is used in Flash. The settings present under Transition consist of Effect Duration denoted in frames, Direction with In and Out options, Fade option, Wipe option and Motion Ease.



Transition dialog box

6.2 Filters

Filters in general sense means something that removes the impurities and gets back the pure form. Filters in Flash CS3 is nothing but a feature that adds refined visual effects to text, buttons and Movie clips. These visual effects includes drop shadow, blur, glow, gradient glow, gradient bevel and bevel. Filters do not change the symbols permanently. So, you can add filters on instances of the same symbols and whenever you feel like it, remove them. Here you can adjust the brightness, contrast, saturation and hue level in the Movie clip by using the adjust color filters. By using Filter tab in Properties Inspector or Action script filters effects can be applied to Movie clips, buttons or text fields.

Using Flash filters enables you to create beautiful graphics. One of the unique characteristic in Flash is the provision of animating the filters by using motion Tween. Let us consider one example for instance, if you create a ball using drop shadow, you will find the light source moving from one side of the object to another by changing its position in the Timeline. While applying Filters you can set up the orders of filters in your own way to try out with combined effects. Apart from this if you wish you can enable and disable filters or even delete them from the Property Inspector. Just by selecting the object you can view the filters applied to it, this will automatically modify the filters list in the Property Inspector.

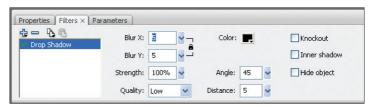
You can use Filters in practical sense. Suppose you want to float something over the stage. What you need to do is to apply drop shadow filter to a clip. Let us consider one example, suppose you want to desaturate a photo and give it a black and white look. What will you do? You have to do nothing but import one photo you want to desaturate and then convert it to a Movie clip symbol. Then from the filters panel select 'Adjust color' and then adjust the saturation slider to the left and set it to -100. If you want you can also give a yellow tinge by adjusting the Hue slider. So after reading this you can apply Filters in practical sense.

Do you know filters cannot be used independently? It is dependent upon the object instance to which you apply the filters. Now while applying a filter to a particular object or Bitmap Data instances you need to follow the guidelines:

- 1. Always use the filters Properties while you apply filters to movie clips, text fields and buttons. The filters property of an object can be altered by clearing the filters property.
- Use BitmapData.applyFilter() method to apply filters to Bitmap Data instances.
- 3. Besides this, filter effects can also be applied for composing images and videos with the help of Filters tab in the Properties Inspector.

However, it should be remembered that too much usage of Filters in a Flash application may cause damage. Applying of too many filters for an application may cause large amount of memory loss and that in turn would affect the Flash player's performance.

Whenever you add a new filter to any object it gets added to the list of the applied filters of that particular object in the Properties Inspector. As you have read earlier you can add filters to an object and at the same time you can remove the applied filter. So, by creating a filter setting library allows you to apply that same filter or the sets of filters to an object. One thing that should be kept in mind is Filters cannot be applied to any other object other



Filters panel

than text, button and Movie clip objects. Suppose you want to apply Filters. For that follow the steps:

- 1. Go to the Properties Inspector and click on the Filters tab
- 2. There you will find a (plus) + and (minus) sign.
- 3. So, click on the + sign.
- 4. A drop down list appears.
- 5. From there you can select the filters according to your choice.

In the drop down list you will find Drop Shadow, Blur, Glow, Bevel, Gradient Glow, Gradient Bevel and Adjust Color. Each of them renders different effect as you apply.

As for example Drop Shadow adds to the profundity of the image. The shadow applied to the text or the image depends on the settings where you can set the blur, strength, quality, color, angle and distance.

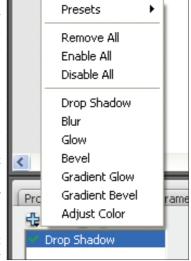
The Blur effect adds to the smudginess of the entire content of the instance. Here you get to set the blur and quality level.

The Glow effect draws a duplicate of your instance's shape and blurs it too. If you apply this effect upon any text, it appears some-

what like a mist on the original layer on the top. This glow stands out contrasting to the text color. Here you have the option of adjusting the blur, strength, quality and color.

The Bevel effect gives a raised look to the instance. This raised part is highlighted which gives an embossed look. You can darken this embossed look by simply adjusting the blur, Strength, quality, shadow, highlight, angle, distance and type.

The Gradient glow in Filters reflects the glow but not the color of the glow. Now you can adjust this gradient Filter options glow by altering the blur,



Strength, quality, knockout distance and type.

Gradient Bevel is much like highlight and here the shadows are gradated. Here you can adjust the blur, Strength, quality, angle, knockout distance and type.

The last option is the Adjust Color. Here you can show your own creativity in the context of color. Here you can add brightness, contrast, saturation and hue level.

Now let us see how we can remove Filters. So, just follow the steps:

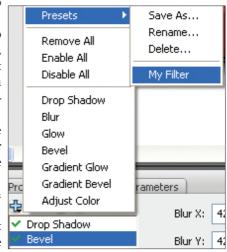
- 1. First you need to select the button, Movie clip, button or the text object from where you want to get rid of the filter.
- 2. Now in the Properties Inspector select the Filter tab. From the list of applied filters select the filter that you want to delete or remove.
- 3. Now click on the Remove Filter (-) button in order to remove it.

Filters that are being used for a symbol may be stored by a name for future use. This is saved as Presets in the Filter Menu that appears in the Properties Inspected Panel. Say for a particular symbol in Flash you have applied some filters like Bevel and Drop Shadow. Now if you again click on the plus sign (+) you will find an option called Presets.

In Presets you will find "Save As" option. If you click on this option a dialog box will appear where it will ask for a Preset name. Give a logical name say "My Filters" and click on "OK". All the filters which you have applied will be saved in sequence by the name "My Filters". This is reusable and you can apply the same filters to another symbol just by clicking on the saved preset name.

Follow the steps to apply a Preset Filter:

- 1. First you have to select the button, Movie clip or the text object where you want to apply the filter preset.
- 2. Then from Properties Inspector you have to choose the Filter tab.
- 3. After that click on the Add Filter (+) icon and then select the Presets from the Filter drop down list. Preset Filter



- 4. From there, select the filter preset where you want to apply from the list at the bottom of the preset schedule.
- 5. Select your symbol and just click on it to apply.

Suppose you want to enable or disable a Filter. So how would you do it? Just click the enable or the disable icon in the Filter list located after the filter name in the Properties Inspector.

Now suppose you want to enable or disable all the filters applied to an object. So, how will you do it? What you need to do is just click on the Add Filter (+) button in the Property Inspector and select Enable All or Disable All from the drop down menu.

Animation is another interesting thing in Filters. You cannot animate any other thing apart from Movie clips and that too if that Movie clip have filters already applied to it. Objects that are kept on separate frames and are being animated by using Tween change their parameters of filter in the intermediate frames. In case a filter does not have a matching filter, i.e. a filter of same type at the opposite end of the Tween, don't worry a maching filter is automatically added which assures that the effect will come at the end of the animation sequence.

So let's see how to animate a filter using Flash CS3.

- 1. First you have to create a new Flash document and save it as 'animation.fla'
- 2. Then add a Movie clip instance on Frame 1 on the Stage. Then choose the instance and open the Filters tab.
- 3. Now you have to click on the Add Filter (+) buton and then from the dropdown menu select Glow.
- **4.** After that change the Blur X and Y values to 25 in the Filter tab. Then on the Timeline select Frame 15 and add a new keyframe by pressing F6.
- 5. Now select the Movie clip instance and open the Filter tab. Here change the Blur X and Y values to 2.
- 6. Then go to the Windows menu and choose Create Motion Tween from the context menu.
- 7. Your animation is ready.
- 8. To test it go to Control > Test Movie.

Application Of Filter In Animation

Now let's look at how you can apply filters in animation.

Lightning Animation

Let's learn to create an animated lightning in Flash.

- Open a new file with a dark background.
- Go to the Properties Inspector.
- Set the Frame rate to 28 fps.
- Rename the layer as 'picture'.
- Go to File > Import > Import to Stage.
- Once you have imported the image select the picture.
- Now press [F8].
- Type picture_mc as the name and convert it to a Movie clip.
- Now, double-click on the new Movie clip.
- Keep the picture selected and press [F8].
- Again convert it to Movie clip.
- Click on frames 2, 3, 4, 5, 6, 7 and press [F6] six times.
- Starting from the first frame click on every alternate frame.
- Now click on the picture to select it.
- Press [Ctrl] + [F3] to open the Properties Inspector.
- In the Properties Inspector click on Filters tab.
- Click on plus (+) icon and select Adjust Color from the drop down list.
- Now set the values as:

Brightness: 0

Contrast: 0

Saturation: 30

Hue: 0

- \bullet Repeat the whole process for rest of the key frames.
- Now click on frame 60.
- Press [F5].
- Now move back to the main scene.
- Create a new layer and name it as 'lightning'.
- Next lock the first layer and select the lightning layer.
- Select the Pencil Tool from the Tool box.
- Select white for the Fill color and Stroke color.
- Set the Alpha to 50% and select Ink under Options.

- Press [Ctrl] + [F3] to open the Properties Inspector.
- Set the Stroke Height to 3 px and Stroke style as Solid.
- Now draw a line which will look like lightning.
- Keep the line selected and press [F8].
- Now type the name as line_mc and convert it to Movie clip.
- Then double-click on the new Movie clip.
- Now click on frame 2 and press [F7].
- Again take the Pencil Tool and draw a line.
- This line must differ from the previous line.
- Repeat the previous steps seven times.
- Now click on frame 8 and press [F7].
- Again click on frame 60 and press [F5].
- Now move back to scene 1 and select 'lightning' line.
- Press [Ctrl] + [F3] and select Filters tab.
- Convert to Movie Clip.
- Select the plus icon and choose Glow.
- Set the values as:

Blur X: 12

Blur Y: 12

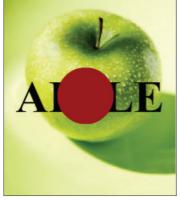
Strength: 100%

Quality: Low Color: White.

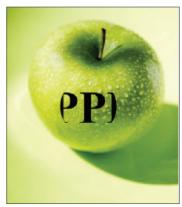
- That's it.
- Press [Ctrl] + [Enter] to see the preview.

Masking

The word mask implies something covered or something in disguise. Whenever we think of the word 'Mask' it reminds us of typical artifact worn on the face and the mask parties and ceremonies. So you can very well understand that the idea of masking is very interesting.







After applied Mask

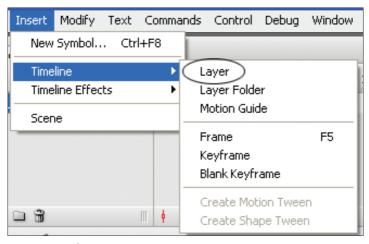
But what's Masking got to do with a software like Flash CS3? Masking in Flash CS3 defines the object that is visible in the masked layer. So its very similar to your childhood hide and seek game.

In Flash, masking hides the other part and shows only those parts of an image which is exactly the same shape of the object on which we are applying the masking effect. Masking in Flash allows to create interesting visual effects. Let us create one mask layer following these steps.

- 1. Select one layer in which it will contain the object to appear inside the mask. You can also create your own layer.
- 2. Now select Insert > Timeline > Layer to create a new layer iust above it.
- 3. Remember a mask layer always covers the layer immediately

below it, so, create the mask layer in proper place.

- 4. You have to then place one filled shape, text or an instance of a symbol upon the mask layer.
- 5. Flash does not notice bitmaps, gradients, transparency, color and line styles in a mask layer. Any objects that are filled remain absolutely transparent when mask, and nonfilled areas display.
- 6. Now, go to the Timeline and right-click on the mask layer's



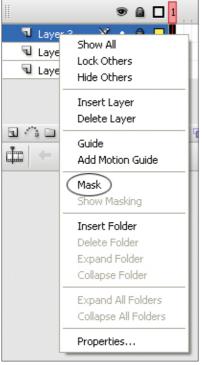
Layer category in Insert Menu

name that you have assigned, from there select mask.

- 7. Mask layer is identified by an icon displayed on it
- 8. If you want to see the mask effect in Flash, then what you need to do is just lock the mask layer and the masked layer.

Apart from this masking in Flash serves one main function—it adds some beautiful effects. Masking is often used in Flash to create a spot light effect that would display the text through a hole. You can also create a mask layer by simply following the above steps mentioned, but in case of movie clip, it is a bit different. You cannot create a mask layer from a Movie clip in the way you did before. For this you need to use the ActionScript. Whenever any ActionScript is applied it is specifically done for the Movie clip and nothing else.



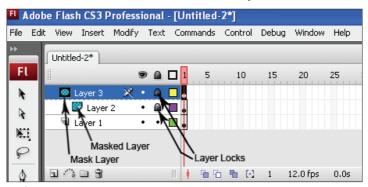


Mask option

Now let us think how can we work with the mask layers. Mask layers can be used for the purpose of disclosing the graphics or the picture portions in the layer below. What the mask layer does for you is expose the areas of the linked layers under the filled shape.

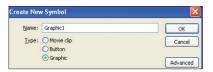
Let us animate a mask by using Flash. It is a very simple and easy application. So, let us unmask a text header. Now follow the steps.

- 1. Move your mouse to the Insert menu and create one new symbol
- 2. Convert it to a Graphic symbol and you can name it as 'Graphic1'.
- 3. Here you use the text tool to create the title inside the symbol.

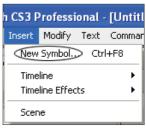


Mask Layers

- **4.** You can use any font, size and color according to your choice.
- 5. Now again you have to come back to Scene 1 and click on the 'Scene 1' button. Note that the button is located just above the stage.
- 6. From the Window menu select the Library and highlight the symbol.
- 7. Now we need to bring out the symbol from the library onto the Stage, set the symbol at the center.
- 8. What you have to do now is to select



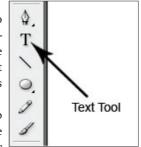
Create New Symbol dialog box



New Symbol option on Insert

frame 30 of layer 1. Right-click on it to select the 'Insert frame' from the dropdown list. Again convert it to the Graphic symbol as you have done it previously and then name it as 'Graphic2'.

9. Now within this symbol with the help of a rectangle tool draw a rectangle and fill it with black color. Remember the length and height of the rectangle



Text Tool



'Scene 1' Button

- should match with length and height of your text.
- 10. Again come back to Scene 1 and insert one new layer at the left hand bottom corner on the timeline and then choose the first frame from this laver.
- 11. Open the library window again and drag the 'Graphic2' symbol to the Stage from the library.
- 12. Then place the Graphic2 symbol in order to cover the Graphic1 symbol. Note you may Library Panel with Symbol find this symbol as too small but if its not very small then you can skip onto step 15.
- 13. As the Graphic2 symbol is already selected, from the Modify menu choose Transform and only after that select the Scale from the fly-out the one which would appear.
- 14. Notice the edge of the rectangle is not adjusted properly so adjust the edges of the rectangle in such a way that it will

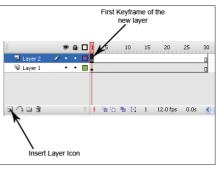
cover the whole text behind it.

- 15. Then click on the stage but outside the rectangle to complete the transform.
- 16. Now on the timeline right click on Layer 2 to select the Mask. Remember not to work on Graphic 2.

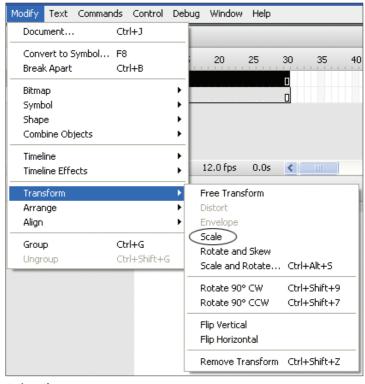




Insert Frame



Timeline with new layer



Scale option

Notice that the Graphic 2 is acting as the hole in the layer.

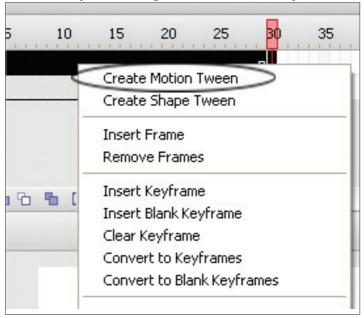
- 17. Now unmask the layer as you did it previously... click on the lock icon on the masked layers to unlock it. Then deselect them to work on the other layers.
- 18. Now right-click on layer 2 on frame 30 to select 'Inert Keyframe'. Again right click on the same layer on frame 1 to insert keyframe. Move the Graphic 2 symbol to the far right side of the rectangle against the left edge of your header
- 19. After this again go to the second layer and right click anywhere between frames 1 and 30. Select 'Create Motion Tween' option from the drop down list.



20. So, you will find that the animated Graphic 2 symbol will now act as the animated mask; this animated mask will bring out the Graphic 1 symbol.

So, with this simple example you can easily apply the same technique to numerous effects and create your own creation. Just follow the above method and you can easily come out with new effects.

If you have a Motion Tween created with the help of a guide layer then Masking cannot be applied on it. But there is a way out. You have to do a simple thing. Just right click on the layer that has the motion Tween so that the entire timeline area from 1st to last keyframe area gets selected. Now with your mouse



Create Motion Tween option

right click on the selected part and choose the option "Convert To Key Frames" You will see that the arrow of the motion Tween will get converted to Key Frames. Now delete the guide layer.

Even after the deletion you will find that the trajectory is maintained by the object. Now right click on the layer and choose Mask too use it as a masking object.

Working With Sounds And Video

That would animations be without sounds. Similarly, you're not just creating animations in Flash, in fact you can also use video content in your Flash movie to make a really interactive animation or presentation.

8.1 Using Sounds

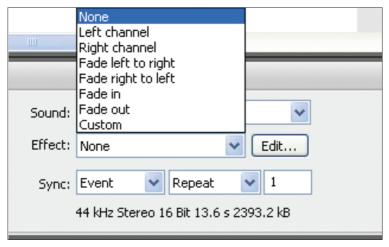
Can you imagine of a film without any background music? Even in the earlier days when we used to have silent movies, the background music was used according to the situation. Chaplin Movies are the best examples of these movies. So no one can argue about the necessity of sounds in a visual presentation.

Flash also allows playing sound, and you can import sounds and play it in the background.

Importing A Sound

Like bitmap images, sounds can be imported easily from the import option. Click on File > Import > Import to Stage/Import to Library to import an MP3 or WAV sound. Once the sound is imported it is stored in the library. You can place the sound in the timeline by selecting the file from the dropdown list labeled as sound in the properties dialog box. You can also drag the sound to the stage from the library. After the sound is imported you will see the sound waves are visible in your Timeline.

After you select the sound file, you can add effects from the Properties Inspector itself. For stereo sound you can use left channel or right channel and even create fade in and fade out effect with the sound file. You can also click on the Edit button to edit it manually.



Effects of sound in Properties Inspector

None If you select this option then there will be

no effect in the sound. You can select this option to remove all the effects that you

have applied earlier.

Left Channel/ Right Channel Specifies the channel for a stereo sound.

Fade Left To Right/ Indicates the direction of fading

Fade Right To Left in or fading out

Fade In Starts with a low volume and increases with

respect to time and reaches the defined

volume.

Starts with a defined volume and decreases Fade Out

to the lowest as the sound ends.

Enables to define the fade in and fade out Custom

pointed by the developers according to

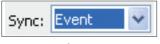
their choice.

You can repeat the sound for a fixed number of times depending on the value you assign for repeat option and also play in a never ending Loop.

You can synchronize the sound with the animation from the sync options. The sync options that are available in the drop down menu are as follows:

Event

This option helps to synchronize the sound with an event. Irrespective of the Timeline or the duration of a SWF file the Event sound goes on playing once it is started. But if there are more than

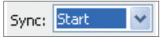


one sound the Event Sounds get mixed.

Event Sync option

Start

Start is very similar to the Event Sound apart from the fact that no $\,$



new instance of the sound is played if we have a sound which is already playing.

Start Sync option



Stop

Stop, as the name indicates, stops the sound that is being played.

Stop Sync option



Stream Sync option

Stream

Unlike Event Sound, Stream sounds play only up to that duration till which the sound has occupied the Timeline. A Stream sound stops

immediately when the swf file stops. Stream Sounds are generally used in Websites and in voice over for character animation.

8.2 Working with Video

The distribution of your video decides on how you make up your

video content and incorpothem. rate Integration of video into Flash can be done in the following ways:



Video options in Flash

Streaming Video Content

Flash Media server is a server solution that is modified to carry out the steaming, real-time media. The imported video clips that are stocked up into the Flash documents and uploaded to the server make the task easy for assembling and developing the Flash document. If you can use the new FLVPlayback component or the ActionScript then you will get a controlled video playback and it would also provide you spontaneous control so that you can communicate with the video. Adobe has come into partnership with several content delivery network (CDN). These networks promise you reliable network and also provide you hosted services that deliver you with on-demand Flash video of high performance level. FVSS no doubt provides the best way to deliver Flash Video to a large number of audiences exclusive of taking any headache of setting up and maintain your own streaming server hardware and network. FVSS is built up with Flash Media Server and is combined directly for delivering, tracking and reporting infrastructure of CDN network.

Progressively Downloading Video From A Web Server

Suppose you don't have any contact or connection with FVSS or Flash Media Server, what will you do? For this you can download the video from an external source while you use progressive downloading. Progressively downloading provides far better service in comparison to Flash Media Server. As for an instance Progressively downloading a video clip from a Web server does not provide you the same real-time span for the performance that Flash Media Server does, but you can comparatively use large video clips and minimize the published SWF files. Now to check out the video playback and provide intuitive controls for users to interact with the new video, it's good to use the new FLVPlayback component or ActionScript.

Importing Embedded Video

The video clips that you import into Flash is referred as the embedded files which can be inserted as required. These files which we can insert is nothing different from the Flash document, it becomes a part of the document. Only due to this you can import short-duration video clips.

Importing Video In QuickTime Format

You cannot import video clips in any other format except Quick Time format as the linked files. Those Flash documents which comprise of the linked QuickTime video should not be published in any other format other than the QuickTime format. Remember a linked video file does not become a part of Flash document, but this document maintains a pointer to the linked file.

Importing FLV files In The Library

Always remember to import video clips in Flash Video (FLV) format directly into Flash. Generally, when you import FLV files use the encoding options that are already applied to the files.

Using the FLVPlayback component

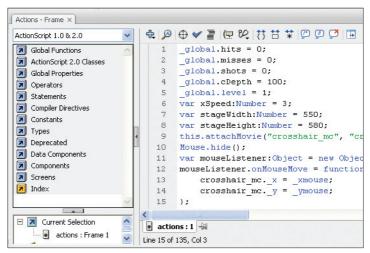
Using the FLVPlayback component helps you to quickly add a full-featured FLV or mp3 playback control to your Flash movie and apart from this it also offers you support for both the progressive down-loading and streaming FLV files. These FLV files make your work easy to create intuitive video controls for the users to regulate the video playback. Besides this FLV files also let you to apply pre-made skins or enforce your own custom skins to the video interface.

ActionScripts

ere's where we introduce you to Flash scripting. If you ever want to be able to make professional grade Flash animations, you will not be able to without understanding ActionScripts. This chapter aims to get you familiar with the basics.

9.1 An Outline Of The Script Window

While working with scripts we often need to import external script files into our application. We do it by using the Script window. We can create external script files and import it into our application by using the Script Window. Here we can work with ActionScript, Flash JavaScript and with Flash Communication. The language elements that are used to create scripts or the elements that we type in the scripts are listed in the Add (+) menu.



The Script window

Let us see how we can create an external file in the script window. Go to File > New, and create a new file.

Now we need to select the external file type that we want to create. The options that available here are: ActionScript file, ActionScript Communication file and Flash JavaScript file.

On the top of the script window some tabs can be seen. These tabs indicate the external files that are opened presently. The tabs display the files names that are opened while working with multiple files.

Now let's see the features that can be used in the Script window. The features include the following options: Add (+) menu, code hinting, code collapse, code commenting, Find and Replace, Auto format, Syntax checking, Syntax coloring Word wrap, Debug options.

The Add (+) menu is just the same as the Actions Toolbox. The Debug options are only applicable for the ActionScript files.

But this isn't all there is to the Script window. It also displays the line numbers and the hidden characters. There are some limitations of the Script window as well, and various code assistance features are also available here. The code assistance features indicate the Script navigator, Script Assist mode and Behaviors. These options are not required to create an external script file, but while creating an FLA file these are essential.

9.2 Actions Panel And Script Window Tools

The code assistance features can easily be accessed through the Toolbars of the script window and the Actions panels. These Toolbars and panels help make things easier, and also help to update coding in ActionScript. The Toolbars of the Actions panel are different from the Toolbars of the Script window.

Add A New Item To The Script



Various language elements are displayed in The Add A New Item To The Script. These language elements are also displayed in the Actions Toolbox. Here we need to select our desired element in order to add it into our script.



The function of this Find option is just the same as the Find and Replace option of other software like MS Word, Dreamweaver, etc.

It can find the text that is to be deleted or modified from a script, and it can replace this text with a new word. Like we said, this of this as a Find/Replace tool for code like that in MS Word.

Insert Target Path

This option is available only in the Actions panel. You can set an absolute or a relative target path for a particular action in the script.

Check Syntax

This option is used to check the errors that occur in the syntax of the current script. These Syntax errors appear in list form in the Output panel.

Auto Format

You might face problem in coding syntax. Sometimes you insert what looks like a proper code string, but the script refuses to run. The Auto Format option is the best available option here. You can format your script by using this Auto Format option, and at the same time improve the readability of the code. You can set the Auto formatting option from the Preference dialog box. To reach this Preference dialog box, select the Preference option from the Edit drop down menu. You can also reach this option from the Actions panel menu.

Show Code Hint

While inserting a script, you may need a wizard to help you find the correct syntax or hints. If you have unchecked the automatic code hint option, then you will need to click on this button to get help.

Debug Options

This option is available in the Actions Panel only. This Debug Option helps to set and remove breakpoints. This is necessary as it evaluates and debugs the code line-by-line. You have to remember that you cannot use this option in ActionScript Communication and in Flash JavaScript, as it works only in ActionScript files.

Collapse Between Braces



Sometimes a code appears between the parenthesis or between the curly braces. This code may contain the insertion point, and can be collapsed by using this Collapse Between Braces option.

Collapse Selection

The Collapse Selection is one of the most useful options that are available here. It can collapse the code block that is currently selected.

Expand All

Suppose you have collapsed codes to work more swiftly, and to be able to view more of the code you're working on, but now need to look at code that you collapsed earlier. The Expand All option will show you all your code in all its glory.

Apply Block Comment



The Apply Block Comment adds comment markers both at the beginning and at the end of the code block that is selected. So you can add explanations for your code here, or just prevent certain lines of code from running.

Apply Line Comment



The Apply Line Comment is one of the important features that can add a single line comment marker at the insertion point. It can also add a single line comment at the beginning of each line of code in a complex section.

Remove Comment

We can use this Remove Comment option to remove comment markers from the current line. It can also remove comment from all lines of the current section.

Show/Hide Toolbox

Like Find and Replace option this Show/Hide Toolbox is also a common feature that is often found in other software. This Show/Hide Toolbox is used to display or hide the Actions Toolbox.

Script Assist Script Assist

This Script Assist option is also found only in Action Panel. In this Script Assist mode you will find a user interface that is extremely helpful to enter elements that are needed in order to create script.



The Help is also a very common tool for most of the users. The Help displays various reference materials for the users. This is extremely important those of you who are not familiar with ActionScript. You can select a particular ActionScript element and then all the information regarding the selected script element are displayed in the Script window. You can just click on the particular element of script and then click on Help and here all the information that are available will appear in the Help panel.

Panel Menu

The Panel menu can only be found in the Actions panel. This Panel menu includes some commands and preferences that can be applied to the Actions panel. Here you can set the line numbers of the scripts. You can also set the word wrapping. The ActionScript preferences can also be accessed through the Panel menu. In order to import or export scripts you can use this Panel menu.

9.3 Set ActionScript Preferences

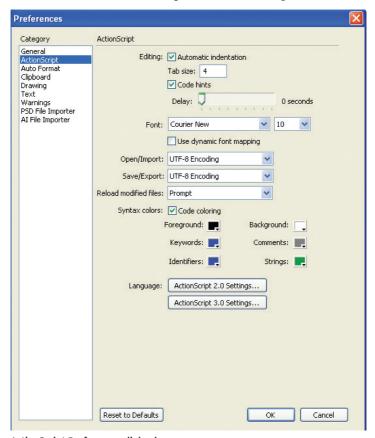
While scripting it is always a good idea to set and modify a single set of preferences. It is extremely helpful to edit codes both in Actions Panel and in Script window.

Let's take a look at how you can set ActionScript preferences. If you are working in Windows then you can go to Edit Preferences. In the Preferences dialog box, under the Category list, a lot categories are available, such as, General, ActionScript,

Auto Format, Clipboard, Drawing, Text, Warnings, PSD File Importer, AI File Importer. Click on the ActionScript option.

If you are working on a Macintosh, you need to go to Flash > Preferences.

You will see the ActionScript Preferences dialog box:



ActionScript Preferences dialog box

Automatic Indentation

This Automatic Indentation option is available at the top of the Preferences dialog box. If you check this option, then the text that vou insert after opening curly braces or parenthesis, will be Automatic indentation option



indented automatically according to the Tab Size.

Tab Size

In the Tab Size field you can mention the number of characters that a new Tab size option line will be indented by.



Code Hints

The Code Hint check box appears just after the Tab Size option. If you check on this option then it will allow code Code hints option hinting in the Script window.



Delay

Here you can Specify the delay (in seconds) before the required code hints are displayed. The units are measured in seconds.



Delay option

Font

You can select your desired font for the script from the drop down menu of the Font. The Font Size can also be mentioned in the box just beside the Font option.



Font option

Use Dynamic Font Mapping

Another check box can be seen just under the Font option. This is the Use Dynamic Font Mapping check box option. It is used to make sure that the selected font can render each and every character. If



Fig 1025: Use dynamic font mapping option

you find it difficult to render a special character, Flash can substitute it with a font family that does contain your desired character.

Open/Import

Just below the Use dynamic font mapping option the Open/Import option can be found. There are two options in the drop down menu: UTF-8 Encoding and the Default Encoding. It can specify



Open/import option

the character encoding that is used when you open of import the files that are based on ActionScript.

Save/Export

The Save/Export option can be found just after the Open/Import option. In this drop down menu also two options can be found: UTF-8 Encoding and Default Encoding. This option can specify the



Save/Export option

characters encoding that are used while saving and exporting the ActionScript files.

Reload Modified Files

Below the Save/Export option the Reload Modified Files option can



Reload modified files option

be found. There are three options in the drop down menu of this option: Always, Never, and Prompt.

Always: If this Always option is selected as the Reload modified files attribute then the file will automatically be reloaded and no warning message will be displayed.

Never: If this Never option is selected as the Reload modified files then the file will be in the current state. Here also you will not get any warning message.

Prompt: This is the default option of the Reload modified files attribute. Here a warning message will be displayed. Here you can select your desired location where you can reload the file.

You can avoid overwriting a script while developing the applications that include external scripts by using this option of Preference dialog box. The overwriting is possible if any one before you edits and modifies the script by inserting a few more scripts. This option also immensely helpful, as you can avoid publishing a script with the existent older version of the file. The alert message enables to close a script automatically and to reopen the modified version of the script.

Syntax Colors

After the Reload modified files option, the next is the Syntax colors. Here also you can see a check box. Here you will see six sub options: Foreground, Background, Keyword, Comments, Identifiers, and Strings. Here the colors palette of the Foreground and the Background remain always open. The Colors palette of the other option can only opened if you check on the Syntax Colors

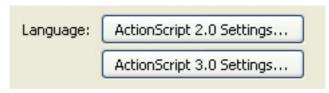
Syntax colors: 🗹 Code coloring		
Foreground:	Background:	
Keywords: 🜉	Comments:	
Identifiers: 🜉	Strings: 🜉	

Syntax colors options

check box. From the Colors palette you can choose your desired colors for the respective options. These selected colors of the codes will appear in the script. This is immensely helpful as the different codes can easily be identified through the different colors.

Language

In the Language section, you can see two buttons indicating two ActionScript language: ActionScript 2.0 and ActionScript 3.0. Here the ActionScript setting dialog box will be opened.



Language options

After setting all these preferences you need to click on the OK button.

9.4 Script Assist mode

The Script Assist mode is an excellent wizard to help those of you who are novices with ActionScript. Here you do not need to be a scripting expert. You can easily add interactivity to the file without knowing anything about the language and the syntax of the ActionScript.

From the Actions Toolbox you can select your desired interactivity and add it to the file.

To open the Actions panel you need to click on the Window option in the Menu bar. Here a drop down menu will appear. From this drop down menu you have to select the Actions option. You can also press [F9] to open the Actions panel. To open the Script Assist mode you can click on the Script Assist button.

If you click on a particular item then a description will appear

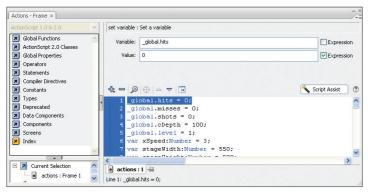
at the upper right corner of the panel. Here you can drag and drop the item or you can double-click on the respective item to add it to the FLA file.

This panel also helps to avoid script errors. All kinds of Syntax errors and logic errors can be avoided by using this panel.

9.5 Using Script Assist To Insert ActionScript

Let us see how we can use this Script Assist mode to insert ActionScript. To insert an action of ActionScript 3.0 we must have to attach a Flash file first to frame. While using the ActionScript 2.0 we can attach the script to a button or to a movie clip or to a frame in the Timeline.

Flash can assemble the codes in the Actions panel that includes ActionScript codes when you click on the buttons of the Script Assist mode. The script may create problem if it includes some code errors. In that case you need to fix the current code selection. All these errors are usually displayed in details in the



ActionScript panel in Script Assist Mode

Compiler Errors panel.

Now let's see how you can add an action to the script pane. First, you have to select a Category in the Actions Toolbox. This is done to display the actions under the selected category. Now you

can either double-click on the respective option, or drag and drop the action. The same action can be done by clicking on the Add (+) button, and then you can select an action from the menu.

Like adding, deleting is also easy. To delete a script, first you have to select a statement in the script window. Then you need to click on the Delete button (-).

We can also just press [Delete].

Similarly, you can move a code easily. To do this you need to select a script in the Script window and then click the Up and Down arrow to move and place it at the desired spot.

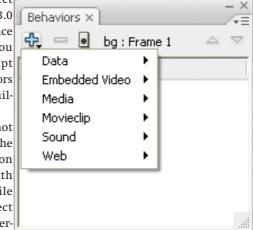
9.6 Behaviour

The predefined scripts that you can add to objects in an FLA file are called Behaviors. The functions that can be added through behaviors are: controlling the stacking order of movie clips, movie clip dragging, frame navigation, and loading external SWF and JPEG files. You can easily avoid writing too much ActionScript by using these Behaviors.

These Behaviors are not available in ActionScript 3.0, so make

sure not to select ActionScript 3.0 from the Preference dialog box. If you select ActionScript 2.0, all the Behaviors will become available to you.

You will also not be able to access the Behaviors option when working with an external file script. First, select your desired trigger-



Behaviors Window

ing object in your document. This triggering object may be a movie clip, or a button. Next, you have to select Add in the Behaviors panel, and then you can select behaviors from the drop down menu that appears.

9.7 ActionScript 2.0

Introduction

The scripting language in Flash is known as ActionScript. Although there's no language that it follows, it's similar to Object Oriented Programming Structure.

ActionScripts can be attached to the frame of a timeline, to a button to make it interactive and to a movie clip. ActionScript finds its use in developing multimedia-based software, interactive CD ROM presentations, complex animations and many other purposes.

ActionScripts are available in many versions. ActionScript 1, 2 and the latest version, 3. ActionScript 3 is basically an advanced version, and mainly expert programmers work with it. On the other hand, ActionScript 2 is comparatively easy to understand, and is ideal for beginners. Before we start, let's understand the basic difference between ActionScript 2 and Action Script 3.

9.8 Differences Between ActionScript 2.0 And 3.0

The Compile-time type checking and the class-based syntax are the main features of ActionScript 2. The Class based syntaxes are nothing but the keywords class and extends. The class based inheritance syntaxes are also introduced in the ActionScript 2. This is extremely helpful for developers as they can easily create classes and interfaces in ActionScript 2. Previously, it was possible only in Java and C++.

ActionScript 3 is the updated version of ActionScript. It includes not only the features of ActionScript 2, but also includes some additional features. The ActionScript 3 is so different a scripting language that a completely different virtual machine i.e., Flash Player 9 is required to run the script. The Flash Player 9 includes two virtual machines. AVM2 is used to write the contents of the ActionScript 3.

Let us look at the different between the ActionScript 2 and the ActionScript 3 in details:

By using Flash CS3, Flash 8 and Flash MX 2004 we can publish the ActionScript 2 files but we can only publish the files of ActionScript 3 by using the Flash CS3.

ActionScript 2 is the foundation for Flash Lite 2 and Flash Lite 3 that are used in mobile phones. The external .swf files that are coded with ActionScript 2 can be loaded by ActionScript 3.swf files.

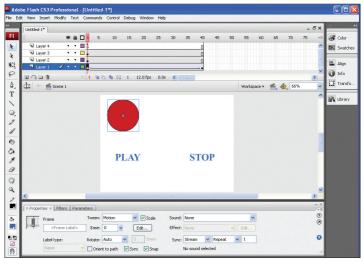
The files of ActionScript 2 can be run in several versions of Flash player like Flash Player 7, Flash Player 8 and Flash Player 9. Files created with ActionScript 3 can only run in Flash Player 9 which is what most users face problems with.

Also, since most users find it easy to work with ActionScript 2, and only a few use ActionScript 3, we'll stick to 2 for this Fast Track. Plus, most people already have sites based on ActionScript 2, they're reluctant to upgrade. Though we must add that keeping yourself updated and future-proof means that once you have mastered ActionScript 2, you should learn 3, as it will not only help you with Flash, but also with Adobe Flex.

Like all other scripting languages, ActionScripting follows conventions, which means developers find it comfortable to work with, and designers also find it easy to handle codes.

9.9 Adding ActionScript

Let us start with a very basic Action Script:



An Animation controlled by ActionScript

Suppose you have a ball on the stage that moves from one end to the other with the help of Motion Tween. Now you want to control the animation. So you create two buttons—Play and Stop.

You want the ball to start moving only when you click on the Play button, and will stop only when you click the Stop button.

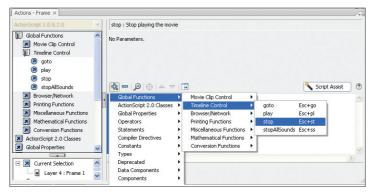
So first, you have to stop the ball's movement.

To do this, right-click on the first frame of any layer in the timeline and select Actions. The Action dialog box opens.

You can click script assist as that will help you while writing the scripts. From the + sign above choose Global Functions > Timeline Control and select Stop.

stop();

Now the ball will not move any more.



Stop Action

Now select the Play button and right-click on it.

Keeping the script assist button on, click on the + sign and from Global Functions > Timeline Control click on Play. You will get a script some what like this:

```
on (release) {
 play();
}
```

This on (release) is the mouse event, and it means that after you release the mouse button, the action Play will be executed.



Play Action

Similarly for the Stop button, follow the same step.

```
on (release) {
 stop();
}
```

Now if you play the animation the ball will not move initially. If you press the play button the ball will start rolling. The ball will stop as you click the stop button.

In this way you can add interactivity to your Flash Animation.

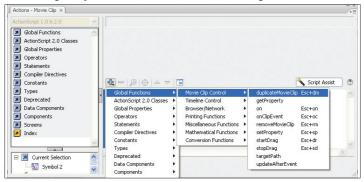
Note: The mouse event which is on (release) in this case can be changed to any other event like on (press / release / releaseOutside / rollOver / rollOut / dragOver / dragOut / keyPress "<some key>") .

9.10 Duplicate Movie Clip

This action can be given in a button or in a keyframe of a Timeline depending on what you want.

Say you have a ball which is a movie clip rolling from one end of the stage to the other. You give it an instance name say "aa".

Say you want a button, which if you click will duplicate the movie clip. So you have to create a button and place it in a differ-



Duplicate Movie Clip

ent layer. Now right-click on the button and choose Actions.

Keeping the Script Assist turned on choose Global Functions > Movie Clip Control> duplicateMovieClip.

Now you have to give the instance name "aa" in the Target name

Assign a new name say aa1 in the New name section.

Set a value for the depth which separates the two clips. Here I have put 12.

Now your script is ready and it looks somewhat like this

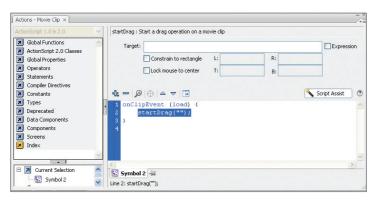
```
on (release) {
 duplicateMovieClip("aa", "aa1", 12);
}
```

Play the movie and click the button. You will see the movie clip is duplicated.

Start Drag

Start Drag helps to attach the mouse with a movieclip. The Movie Clip moves as you move the mouse.

For this we have to add a very simple script. This script is:



Start Drag

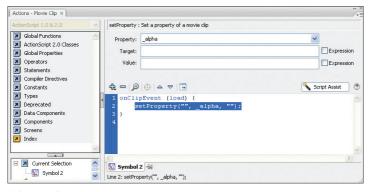
```
startDrag("aa", true);
```

Here aa is the name of the movieclip which you want to drag. "True" means the mouse will be locked with the centre of the movie clip.

Set Property

If we want to change the property of any movieclip through scripts you use this Set Property action Script. You can change properties like alpha (visibility), height, x position, y position, xscale, yscale and other properties through this script. To use this code you need a movieclip and give it an instance name. The script also requires the value of the property apart from the instance name.

```
setProperty("aa", _alpha, "0");
```

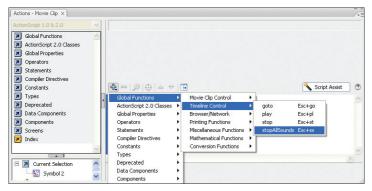


Set Property

From this script it is well understood that if you add this code to a particular keyframe then at that instant the visibility of the movie clip whose instance name is aa becomes 0. That means it becomes invisible when the movie clip reaches a particular keyframe.

stopAllSounds

Flash can play sounds in the background of an animation. But you may stop all these sounds by a single click of mouse on a button.



stopAllSounds

The script to stop all the sounds is

```
stopAllSounds();
```

Escommand

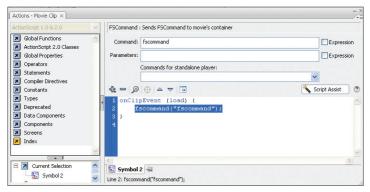
This command helps to play a swf file in full screen mode. With the help of fscommand we can execute some other functions like quit, calling an executable file and many more.

The syntax is like this

```
fscommand("fullscreen", "true");
```

fscommand is available under Global Function > Browser Network > fscommand

quit		It closes the projector
fullscreen	true or false	If you set true then the projector converts in full screen mode and setting the parameter false returns in the normal view
allowscale	true or false	False sets the movie to the original size while true sets the scale to the 100% size of the player



fscommand action

showmenu	true or false	True shows the menu of the
		Flash player and False turns it off.
exec	Path to	The application is executed in
	application	a projector

Get URL

Get URL helps to connect a perticular URL when you clik on a but-

```
on (release) {
  getURL("www.thinkdigit.com");
}
```

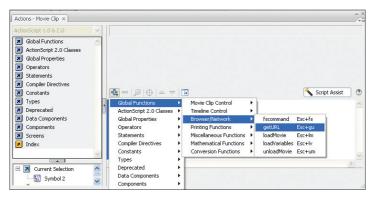
This code means if you click on a button containing this script you will be connected directly to the Web site www.thinkdigit.com.

window:String [optional] – This is an optional property. It specifies the window or HTML frame where you want to load the document. Either you have to put a specific name or you have to choose from the following list.

_self: the url opens in the current frame in the current window.

_blank: the url opens is a completely a new window.

_parent: the url opens in the parent of the current frame.



Get URL

_top: the url opens in the top-level frame in the current window.

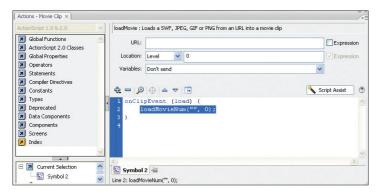
method:String [optional] - This is also an optional property. A GET or POST is a popular method for sending variables. The GET method is a bit unsecured method as it appends the variables to the end of the UR. GET Method is generally used for small numbers of variables. The POST on the other hand sends the variables in a separate HTTP header and is thus much more secured. POST is generally used when we are sending long strings of variables.

LoadMovie

LoadMovie syntax is used when you want to call a SWF file from another movie. This script plays a vital role while creating interactive presentations.

```
on (release) {
 loadMovie("baby.swf", "my_stage");
}
```

This script means if you click on the button with which this script is attached then another swf file called baby. swf located in the same directory will open. The second part i.e. my_stage is the name of a movieclip. By using this instance name in the script we



LoadMovie

can specify that the baby.swf file will open in the area of the movieclip. Of course for that the location should be set to Target rather then Level.

UnloadMovie

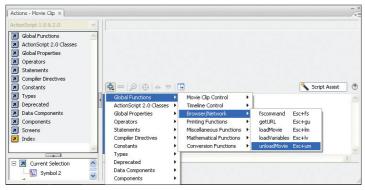
In our previous section we have learnt how to open a SWF file inside another file. Now you may need to remove the file after your purpose is over. Here we use the script UnloadMovie.

```
on (release) {
unloadMovie("baby.swf");
```

This script clearly indicates that if you click on the particular button to which UnloadMovie script is attached then the external swf file which you have called by using the script LoadMovie will be removed from the stage.

9.11 Variables

Variable is a common concept in any programming or scripting Language. Before we start discussing the use of Variable in Flash, let us understand what variables are.



UnloadMovie

Variables may be thought of a container that holds data that can be used later on as and when necessary. Suppose you are standing in a room where there are many types of fruit. You have an empty basket in your hand. You are asked to transfer the fruit to another room. So you start with apples and put all the apples in the basket in order to take it to a different room. Your basket now contains apples, so it is a basket with apples. Next time when you load the basket with oranges, it becomes a basket of oranges. Similarly, the basket varies from time to time depending on what fruit you are putting inside it. So it can be termed as a variable with respect to the object kept within it. Similarly in Flash or other programming languages we can assign any letter or word as a variable and we can assign characters, numeric values and others inside it.

Variable types

String Variables

String Variables holds characters. The characters may be single or multiple. String variables may also contain digits, but in that case the digits will not be treated as integers. That means you cannot carry out mathematical operations using those integers. The digits will look like numbers but will be treated as characters. As for example, the variable item could hold the value "computer". The

quotes (" ") are required to define the value as a string

Example of a string variable

```
item = "computer";
```

Number Variables

A number variable as the name suggests holds numbers which are treated as integers. You can do mathematical operators and functions using these number variables. Here no quotes ("") are required as these variable does not contain characters.

Examples of Number Variables

```
num1 = 100;
```

Boolean Variables

A Boolean variable store logical condition like: true or false. For example, you can use a boolean variable while storing the login state of a user.

Example of Boolean Variable

```
user_logged = true;
user_logged = false;
```

Application Of Variables in Flash

Additions of two values

We can use the concept of variable in Flash and can find the sum of two values using Action Script. Follow these simple steps and see the output.

- Open a new Flash file (ActionScript2)
- Insert a new layer.
- ullet Rename this layer as "Captions".
- Take the Text Tool from the Tool box
- In the first keyframe type "Type 1st Number".
- Click on the Selection Tool.

- Click on the 2nd frame.
- Press [F7] to insert a blank keyframe.
- Again select the Text Tool.
- Now type "Type 2nd Number".
- Now click on the 3rd frame.
- Press [F7] once again.
- Type "The Result is:"
- Lock the Captions layer.
- Now insert another new layer.
- Rename this layer as "Text box".
- Select the Text Tool once again.
- Open the Properties Inspector.
- Here select the Text type as 'Input Text'.
- Now set the Font type as Arial, size as 24, and color as black.
- Turn on the bold option.
- Set the alignment as Center.
- Now click on the stage to create an input text box.
- Set the position of the input text box with the help of the Selection Tool.
- Now click on the 1st frame of the Text box layer.
- Press [F6] twice to insert keyframes.
- Move back to the frame 1.
- Click on the input text box.
- Go to the Properties Inspector and in the Var text field type "int1".
- This Var is the variable name.
- Now go to 2nd frame and click on the input text box to select
- In the Properties Inspector, type "int2" in the 'Var' text field.
- Now move to 3rd frame.
- Again click on the input text box once to select it.
- Type "int3" as 'Var' text field in the Properties Inspector.
- Now lock the layer.
- Insert another new layer.
- Rename it as "Buttons".
- Select the Text Tool.
- Now set the Text type as 'Static Text'.

- Set the font color as red and size as 70.
- Turn off the bold option.
- Now type "+".
- Click on the Selection Tool.
- Press [F8] to convert the text as symbol.
- The Convert to Symbol dialog box opens.
- Type "Button1" as symbol name.
- Choose the symbol type as Button.
- Click on OK.
- Double-click on the button to enter its timeline.
- Click on the 'Hit' frame.
- Press [F6].
- Select the Rectangle Tool.
- Draw a rectangle over the (plus) + sign
- Move back to Scene 1.
- Now click on the 2nd frame.
- Press [F7] to insert a blank keyframe.
- Again select the Text Tool.
- This time type "=".
- Click on the Selection Tool.
- Press [F8].
- Type "Button2" as symbol name.
- Click on OK.
- Again double click on the button to enter its timeline.
- Click on 'Hit' frame and press [F6].
- Select the Rectangle Tool.
- Draw a rectangle.
- Go back to Scene 1.
- Click on the 3rd frame.
- Press [F7].
- Now move to the 1st frame.
- Click on the button once to select it.
- Open the Actions Panel.
- Add this script:

```
on (release) {
 a = int1:
```

```
gotoAndPlay(2);
}
```

- Now move to the 2nd frame.
- Click on the button.
- In the Actions Panel add this script:

```
on (release) {
b = int2:
 gotoAndPlay(3);
```

- Now lock the layer.
- Insert a new layer.
- Rename it as "Actions".
- Right click on the 1st frame.
- Select Actions from the list.
- In the Actions Panel add this script:

```
var a = 0:
var b = 0;
var c = 0;
stop();
```

- Now click on frame 2.
- Press F6.
- In the Actions Panel, add this script: stop();
- Now click on frame 3.
- Add this script in the Actions Panel:

```
stop();
onEnterFrame:
c = Number(a) +Number(b);
int3 = c;
```

- The animation is complete now.
- Click Ctrl +Enter to view the animation
- Put the values and just press equal sign to find out the values.

9.12 List of Important Syntaxes used in Flash

Array([numElements], [elementN]): Array

It is used to create a new and empty array. It can also convert an element that is specified to an array.

Boolean(expression:Object): Boolean

It can convert the parameter expression to a Boolean value at the same time it returns either true or false.

call(frame:Object)

It can execute the script in the called frame without the movement of the playhead to that frame.

chr(number:Number): String

It has been Denounce since Flash Player 5. This function was also denounced to favor the String.

fromCharCode().

It can convert the code numbers of ASCII to the characters.

clearInterval(intervalID:Number)

It is used to cancel an interval that is created by a call to setInterval().

duplicateMovieClip(target:Object, newname:String, depth:Number)

While playing the SWF file, it is used to develop an instance of a movie clip.

escape(expression:String): String

It is used to convert the parameter to a string and to encode it in a URL-encoded format. In this format all nonalphanumeric characters are restored with % hexadecimal sequences.

eval(expression:Object): Object

It can access various objects as variables, properties, objects, or movie clips by name.

fscommand(command:String, parameters:String)

It is used to communicate a SWF file with the Flash Lite player or the environment for a mobile device. An operating system is one of those environments.

fscommand2(command:String, parameters:String)

It is used to communicate the SWF file with the Flash Lite player .It can also communicate the SWF file with a host application on a mobile device.

getProperty(my mc:Object, property:Object): Object

It can return the value of the specific property for the movie clip my_mc.

getTimer(): Number

It can return the number of milliseconds which have not been used since the SWF file started playing.

getURL(url:String, [window:String], [method:String])

It can load a document from a particular URL into a window or it can pass variables to another application at a defined URL.

getVersion(): String

It can return a string that contains Flash Player version as well as the platform information.

gotoAndPlay([scene:String], frame:Object)

It is used to send the playhead to the specific frame in a scene and at the same time it can play from that particular frame.

gotoAndStop([scene:String], frame:Object)

It can send the playhead to a particular frame in a scene and it can stop it.

ifFrameLoaded([scene:String], frame:Object, statement(s):Object)

It has been denounce since Flash Player 5. This function has been

denounced. Here Adobe recommends that we should use the MovieClip. framesloaded property.

It can check if the contents of a specified frame are available locally.

int(value:Number): Number

It has been denounced since Flash Player 5 to favor Math.round(). It can convert a decimal number to an integer value and it is done by truncating the decimal value.

isFinite(expression:Object): Boolean

It is used to evaluate expression and to return either true if it is a finite number or false if it is infinity or negative infinity.

isNaN(expression:Object): Boolean

It can evaluate the parameter and can return true value if the value is NaN. This value can not be a number.

length(expression:String, variable:Object): Number

It has been denounced since Flash Player 5. This function as well as all the string functions have been denounced. According to the recommendation of Macromedia we should use the methods of the String class and the String. Length property in order to perform the same operations.

It can return the length of a specific string or variable. loadMovie(url:String, target:Object, [method:String]) It can load an SWF or a JPEG file into Flash Player when the original SWF file is playing.

loadMovieNum(url:String, level:Number, [method:String])

It can load an SWF or a JPEG file into a level in Flash Player when the SWF file that is originally loaded is playing.

loadVariables(url:String, target:Object, [method:String])

It read data from an external file as a text file or a text that is generated by ColdFusion, a CGI script, Active Server Pages (ASP), PHP, or Perl script, and it can set the values for variables in a target movie clip.

loadVariablesNum(url:String, level:Number, [method:String])

It read data from an external file as a text file or text that is generated by a ColdFusion, CGI script, ASP, PHP, or Perl script, and it can set the values for variables in a Flash Player level.

mbchr(number:Number)

It has been denounced since Flash Player 5. This function has been denounced to favor the String.fromCharCode() method.

It can also convert an ASCII code number to a multibyte character.

mblength(string:String): Number

It has been denounced since Flash Player 5. This function has been denounced to favor the String.length property.

It can return the length of the multibyte character string.

mbord(character:String): Number

It has been denounced since Flash Player 5. This function has been denounced to favor String.charCodeAt() method.

It can convert the specific character to a multibyte number.

mbsubstring(value:String, index:Number, count:Number): String

It has been deprecated since Flash Player 5. This function has also been denounced to favor the String.substr() method.

It can extract a new multibyte character string from a multibyte character string.

nextFrame()

It can send the playhead to the next frame.

nextScene()

It can send the playhead to Frame 1 of the next scene.

Number(expression:Object): Number

It can convert the parameter expression to a number.

Object([value:Object]): Object

It can create a new empty object and it can also convert the spe-

cific number, string, or Boolean value to an object.

on(mouseEvent:Object)

It is used to specify the mouse event or keypress that can trigger an action.

onClipEvent(movieEvent:Object)

It is used to trigger the actions that are defined for a specific instance of a movie clip.

ord(character:String): Number

It has been denounced since Flash Player 5. This function has also been denounced to favor of the methods and properties of the String class.

It can convert characters to ASCII code numbers.

parseInt(expression:String, [radix:Number]): Number

This converts a string into an integer.

play()

This helps in moving the playhead forward in the Timeline.

prevFrame()

This syntax helps in sending the playhead to the previous frame.

prevScene()

This syntax is used to send the playhead to the 1st frame of the previous scene.

random(value:Number): Number

The function of this syntax is to return a random integer which varies between 0 and one less than the integer which is specified in the value parameter.

removeMovieClip(target:Object)

This syntax is used to delete a specific movie clip.

120

setInterval(functionName:Object, interval:Number, [param:Object], objectName:Object, methodName:String): Number

The function of this syntax is to call a function, a method or an object at periodic intervals while a SWF file plays.

setProperty(target:Object, property:Object, expression:Object)

This syntax helps in changing the property value of a movie clip when the movie plays.

startDrag(target:Object, [lock:Boolean], [left,top,right,bottom:Number]) The syntax helps in making the target movie clip dragable when the movie plays.

stop()

This syntax stops a currently playing SWF file.

stopAllSounds()

This syntax stops all sounds in a currently playing SWF file. However, it does not stop the playhead.

stopDrag()

This syntax puts a stop to the current drag operation.

String(expression:Object): String

This syntax is used to get back a string representation of a specified parameter.

substring(string:String, index:Number, count:Number): String This syntax is used in extracting a part of a string.

targetPath(targetObject:Object): String

This syntax when used, returns a string which contains the target path of movieClipObject.

tellTarget(target:String, statement(s):Object)

This syntax is used to apply the instructions which are specified in the statements parameter to the Timeline specified in the target parameter.

toggleHighQuality()

This syntax helps in turning the anti aliasing on and off in Flash player.

trace(expression:Object)

The function of this syntax is to evaluate the expression and output the result.

unescape(string:String): String

This syntax performs manifold functions. It first evaluates the parameter X as a string. Thenit decodes the string from the URL encoded format. While doing the decoding, it converts all the hexadecimal sequences to ASCII characters. Lastly, it returns the string.

unloadMovie(target)

This syntax is useful in removing a movie clip which had been loaded from Flash Player by means of loadMovie().

unloadMovieNum(level:Number)

The function of this syntax is to remove a SWF or an image from Flash Player which had been loaded by means of loadMovieNum().

Important Terminology Used In Flash CS3

.as file: This is a text file format that includes ActionScript code only.

.fla: This is an editable Flash source file. We can only open it by using the Adobe Flash.

.flv: This is a Flash Video file.

.html: This is the file extension of the Hyper Text Markup Language. This file format can display a Flash movie in a Web browser.

.swd: This file format is developed while selecting Control, Debug Movie. We can use this file format for remote debugging.

.swf: This is a Flash output file that is developed while testing or publishing a flash movie. This file is intended for various allotments. This file format can be embedded into a webpage.

ActionScript 3: This is the updated version of ActionScript. This version is preferred in Flash CS3.

ActionScript: This is the scripting language that is used in Flash. There are two versions of ActionScript: ActionScript 2.0 and ActionScript 3.0.

AS2 / ActionScript 2: This is the earlier versions of ActionScript. This is a scripting language. It has a huge similarity with Java. The AS2 is the acronym of ActionScript 2.

Aspect ratio: The aspect ratio is the ratio of height and width. The shape of a Flash animation remains same irrespective of its size.

Bitmapped graphic: This is one of the image file formats, which includes the information of the color for every pixel.

Blank keyframe: This is a key frame where nothing appears on the stage.

Brightness: This property of the color defines the quantity of whiteness that is to be added.

Button state: The Button state is the visual version of a button. There are three button states such as down state, up state and over state.

Button: This is the key that is clicked by the user to happen an action.

Coordinates: The Coordinates are the numbers that can signify a place in a Cartesian plane. The Coordinates are represented by X and Y.

Down button state: The button remains in its down state when a user clicks a button.

Event: The events can be triggered by ActionScript. The 'press' and 'click' are the two most familiar events that are called by the users. The onLoad and the onClick are the two automatic events.

Filters: We can add various visual effects to the texts and to the symbols by using the filters. The drop shadow is one of those effects.

Frame by Frame Animation: This form of animation can use a series of key frames without any tweening.

Frame rate: The Frame rate is the frames-per-second rate (FPS) that the animation can play. The default Flash frame rate is 12 FPS. This rate is very slow and it will look broken up and here the details distort too fast.

Frames: A lot of empty frames are available in the Timeline. The images displayed in the Flash application are arranged in the Timeline. In order to edit the sequence of Animation we can easily edit the frames in the Timeline.

Grid: The Grids are the set of lines that appear on the Workspace.

Guide layers: The Guide layers are a special type of layers that are not exported while exporting a Flash file.

Hue: Along with brightness and saturation the hue is a way to describe a color. This is a solid color.

Instance: The Instance is a presence of a symbol on Stage and these are used from the Library. A number of symbols may appear on Stage but we can only save the master symbol. It helps to keep the file size small.

Keyframe: A keyframe is nothing but a frame where we can identify a change in an animation. Here we can also include frame actions in order to edit a document. We can arrange these keyframes in the Timeline to make the necessary changes in sequence in the Animation.

Layers: The Layers in the Timeline are the arrangement of frames. We can organize the artwork in our Flash document by the help of Layers. We can edit the objects that are placed on one layer without affecting the objects of other layers.

Mask and Masked layers: These layer properties always come in pairs and these pairs are: the layer for the mask and the layer for the object that is masked.

Morph: A particular type of animation that can transit from one shape to another.

Motion Tweening: In Flash, motion tweens can only be applied on

instances of symbols. While using a Motion Tween, properties like size, position, rotation of an instance can be defined easily. The values of all these properties can later be altered at keyframes.

Off Stage: The Off Stage is the grey area outside the Stage of the workspace.

Onion Skin Tool: By using the Onion Skin Tool we can edit a keyframe while viewing the frames that are placed before and after the current frame.

Over button state: While hovering over the button the button state remains in the Over button state.

Panels in Flash: The Panels in Flash consist of the Properties Inspector, Tool Bar, Actions Panel, Components Panel and the Color Mixer.

Playhead: The Playhead in Flash points out the current frame that is displayed on the Stage. The Playhead moves through the Timeline. The frame numbers of an animation are indicated by the Timeline header. If a frame is to be displayed on the Stage, then in the Timeline, the playhead is moved to the frame.

Property Inspector: The Property Inspector in Flash displays all the information regarding the object that is selected. Here you can find information and settings of the current document, symbol, text, shape, bitmap, group, frame, video or tool.

Rulers: These rulers can be seen along the top and the left side of the workspace. There are two types of Rulers: Vertical rulers and the Horizontal rulers.

Saturation: Along with brightness and hue the saturation is a way to define a color. The saturation is the intensity of the applied color.

Scene: A Scene is a particular section of a Timeline in a Flash file.

Shape Tweening: In Flash, shape tweens create animation which morph into one another. It is necessary to break apart a group or symbol before they can be used for creating a shape tween.

Stage: There is a rectangular area in Flash which displays vector art, graphic content, buttons, text boxes, video clips, imported bitmap graphics etc. This area is called the Stage. This is the main working area of Flash. Changes in the background color and size of the Stage can be done from the Property Inspector.

Symbols: The Symbols in Flash stand for a button, graphic or movie clip that are created in Flash. The symbols in Flash remain as the part of the Library for the current document. The symbol is created only once. The symbol can then be used again and again throughout the same document or can be used in other documents too.

The Library Panel: The Library Panel in Flash acts as a storehouse. This is the place where all the symbols created in Flash are stored in an organized manner. Imported Files which, include sound files and bitmap graphics, are also stored here. The Library is also a good place to store the Video clips.

Timeline: The function of the Timeline is to organize and control the content of a document over time in frames as well as in layers.

Tools Panel: The Tools Panel in Flash comprises of both the painting and drawing tools. The different types of tools that are available here are used to draw free forms, shapes, paths and precise lines. The tools can also be used for painting filled objects.

Tweening: Tweening can be used in order to create animations in Flash. Tweening helps to make changes and create movements over time. It also helps in reducing the size of the file. Flash usually stores the values for keyframes in case of tweened animations. There are two kinds of tweened animations in Flash and these are Shape Tween and Motion Tween.

Up button state: In the inactive state of the button the button remains in the Up state.

URL: URL is the acronym of Uniform Resource Locator. It is a Web address.

Variable: The variables are the containers of data like values, numbers and strings. These values can be accessed later.

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